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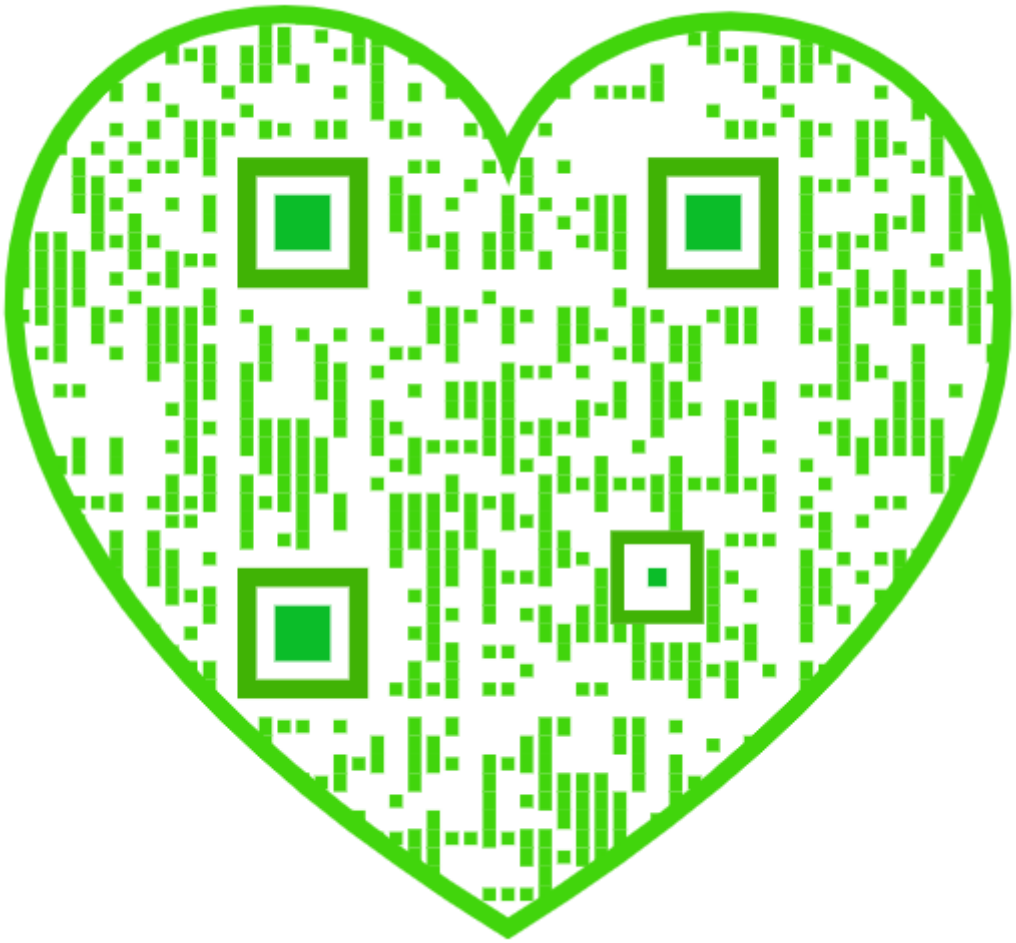

A

COMPLETE MANUAL

FOR THE

Cultivation of the Strawberry;

WITH A

DESCRIPTION OF THE BEST VARIETIES,

ALSO, NOTICES OF THE

RASPBERRY, BLACKBERRY, CURRANT, GOOSEBERRY, AND GRAPE;

WITH DIRECTIONS FOR THEIR CULTIVATION, AND THE SELECTION OF THE BEST VARIETIES.

"Every process here recommended has been proved, the plans of others tried, and the result is here given."

Richard Fay

BY R. G. PARDEE.

WITH A VALUABLE APPENDIX,
CONTAINING THE OBSERVATIONS AND EXPERIENCE OF SOME OF THE MOST SUCCESSFUL CULTIVATORS OF THESE FRUITS IN OUR COUNTRY.

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Preface.

THIS work has been prepared for the press, in the belief that it was wanted by the public.

The author has, in a direct, plain manner, simply given his own experience.

Every process here recommended has been proved; the plans of others tried, and the result is here given.

Every variety of fruit here introduced—except the New Rochelle Blackberry and two or three small, unimportant fruits — has been planted, fertilized, watered, cultivated, and carefully watched daily for months, and in most cases, for years; so that it is not mere theory, or second-hand information from amateurs or gardeners, however superior, that is here recorded.

A large crop of strawberries may be expected every year with as much certainty as a crop of corn, and in fact, more so; for our directions embrace a protection from drought, which so frequently lessens the corn crop.

It will be readily seen that the author has not followed the rules and order usually observed in treating upon these subjects; but has aimed to say what he means, in a condensed, business-like way, so that he may be understood by the mass of readers.

It does not by any means follow, that every one who reads this book will at once raise the largest and most luscious *strawberries* and other choice fruits here named, in the greatest abundance. Few persons are thorough enough to do any thing well at first.

Place a new recipe for making premium bread in the hands of six cooks, and it would be quite remarkable if half of them were so particular as to make good bread on the first

trial. Some little thing which seems to the unskilled to be unimportant, may in fact be *essential.*

It is pleasant to know that so many intelligent cultivators are now turning their attention to the production of these fine fruits, and we may reasonably expect much additional light will be thrown upon some points, which shall be included in subsequent editions of this work.

The writer is happy to acknowledge his obligations to a large number of cultivators of these fruits during the last few years, for valuable suggestions which he has become so familiar with in practice, that doubtless even their precise language has been sometimes unconsciously woven into the text of this work. If it were possible, he would be more specific in his acknowledgments, for it is pleasant to speak of such authors as A. J. Downing, John J. Thomas, P. Barry, C. M. Hovey, and latterly

F. R. Elliott, who has politely assented to our use of some of the accurate drawings of fruits from his new Fruit Book and Guide.

Our Appendix embraces much valuable *original* as well as selected matter, which will place before our readers the views of others, beside our own, and will enable them to exercise their own intelligent judgment, and lead to successful practice.

THE AUTHOR.

THE STRAWBERRY.

THIS is the most beautiful and delicious of all our early fruits, and so easily cultivated and so uniformly productive, that every housekeeper possessing a few rods of ground can have no excuse for not supplying his table with an abundance.

Mr. A. J. Downing said truly, "Ripe, blushing strawberries eaten from the plant, or served with sugar and cream, are certainly Arcadian dainties with a true paradisiacal flavor, and, fortunately, they are so easily grown that the poorest owner of a few feet of ground may have them in abundance."

In the language of Mr. P. Barry—"To grow large, handsome, fine-flavored fruit in abundance, it is not necessary to employ a chemist to furnish us with a long list of specifics, nor even to employ a gardener by profession who can boast of long years of experience.

Any one who can manage a crop of corn or potatoes can, if he will, grow strawberries."

During many seasons we have had on trial in our garden from twenty to sixty varieties at a time, and although some were comparatively unproductive, yet the average cost of producing them for years has been less than fifty cents per bushel; not including the cost of picking or expense of plants, which were taken from our own garden. Others can, and have done, the same. We can refer to amateurs, market-men, farmers, and nurserymen in Western New York, who have raised them at even a smaller cost, both on a large and small scale. On a plot of ground fifty by sixty feet, we have repeatedly gathered over fifteen bushels in a season, under all the disadvantage of many varieties. With a good selection of kinds, it is certain that one hundred and fifty bushels can easily be produced on an acre. We have on small beds grown at the rate of two hundred and fifty bushels to the acre, and we have abundant testimony that, on a larger plot, at the rate of two hundred bushels per acre has been gathered. It is almost as easy to raise extra-large, fine fruit, as it is small indifferent berries; and it is a decided object. Fruit of high flavor, measuring from three to four inches in circumference, will command fifty cents per quart in New York or any other good market, as readily as small fruit will ten cents; while the labor

of picking such large fruit is very small, and the product much larger. The demand for extraordinary fruit is everywhere increasing.

Of the many varieties on our own grounds one season, more than twenty different kinds, without special effort, produced specimens four inches in circumference, while the largest were six. There is a positive pleasure in raising such fruit, and our aim in this work is to enable many persons to make that pleasure their own. The interest on this subject has so increased and become so well-nigh universal, that every village and neighborhood can call out a little company who will be glad to know how easily it can be done.

Mr. Downing says, "The strawberry is perhaps the most wholesome of all fruits, being very easy of digestion, and never growing acid by fermentation, as most other fruits do. The oft-quoted instance of the great Linnæus curing himself of the gout by partaking freely of strawberries—a proof of its great wholesomeness—is a letter of credit which this tempting fruit has long enjoyed, for the consolation of those who are looking for a bitter concealed under every sweet."

An unknown writer in the last *Patent Office Report* says, "The strawberry was described by Juan di Cuba in his '*Ortus Sanitatis*,' in 1485, in which its medical and other properties are treated at length." He also eloquently says:

"When we contemplate the relations which the strawberry plant bears to other parts of nature—to the sun which expands its blossom—to the winds which sow its seeds—to the brooks whose banks it embellishes; when we contemplate how it is preserved during a winter's cold capable of cleaving stones—how it appears verdant in the spring, without any pains employed to preserve it from frost and snow—how, feeble and trailing along the ground, it should be able to migrate from the deepest valleys to Alpine heights—to traverse the globe from north to south, from mountain to mountain, forming, on its passage over prairie and plain, a thousand mingled patches of checker-work of its fair flowers and scarlet or rose-colored fruit, with the plants of every clime—how it has been able to scatter itself from the mountains of Cashmere to Archangel, from Kamschatka to Spain—how, in a word, we find it in equal abundance on the continent of America, from the bleak fields of Tierra del Fuego to Oregon and Hudson's Bay, though myriads of animals are making incessant and universal havoc upon it, yet no gardener is necessary to sow it again—we are struck with wonder and admiration at so precious a gift."

SITUATION.

A warm, exposed, and yet rather moist location is the best for a strawberry plantation.

If very early fruit be an object, select a side-hill gently sloping towards the south, with a liberal admixture of small stones or coarse gravel in the soil. This should then be protected on the north, west, and east by a high closed board fence, or a live hedge; we have seen an artificial hedge of withered evergreen boughs that answered an excellent purpose, and enabled the owner to realize fifty cents per quart for the crop, when otherwise he could not have so much anticipated the usual season, and would have been compelled to take twelve and a half cents for the same quantity.

If late fruit be desired, then select a piece of land facing the north, and exposed. Low land is usually preferable to high, hilly land for the strawberry, yet it can easily be raised on both; a little knowledge of its character will enable us to remedy the defects of the high ground. If the situation is near a spring of water, where it can be irrigated, and is also susceptible of drainage, it is very desirable.

Though they will sometimes succeed when partially shaded with trees or shrubbery, yet they are best

flavored in an open garden, with no shade but their leaves. Alpines, and some other kinds, planted in the northern shade of a fence or dwelling, will commence later and continue longer in their bearing season.

SELECTION OF SOIL.

New land, recently disrobed of its forests, if of a deep gravelly loam, we think is the *best* adapted to the strawberry, and next, a sandy loam; but almost any soil, even the heaviest clay, can be prepared, by a liberal admixture of sand or gravel, so as to produce the finest fruit.

As has been intimated, as low moist soil as can be procured, consistently with depth and thorough drainage, is best adapted to the strawberry; and yet elevated knolls, and even sand-hills, with the precautions above-named, have often succeeded well.

Wet, spongy lands, except with a porous subsoil susceptible of drainage; and high, barren hills, with a thin, flinty soil, are alike to be avoided.

The strawberry, however, is so retentive of life, that it will live in almost any soil; but it will not produce much fruit, unless the remedies are in some way applied to the ungenial soils.

PREPARATION OF THE SOIL.

Clear the ground of weeds, roots, and seeds of all kinds in preparation for thorough drainage, which in most soils should be attended to the first thing. The best drains are the earthen tile drains, from two to four rods apart, which should be so constructed as to be left open at both ends for the circulation of the air, as well as the release of stagnant water. A brush or coarse stone drain is beneficial as a temporary expedient.

After draining, break up the soil as deep as possible with a subsoil plough, or by trenching twenty inches or more deep. The strawberry is so sensitive to drought and stagnant water that very little of the best land in our country can be exempt from draining and trenching, if we would receive in return uniformly large crops of fruit in all seasons.

Inasmuch as the fruit is composed of so large a proportion of potash, soda, and lime—sixty-two parts in every hundred, as will be seen by the tables in this work giving the analysis of the strawberry and plant—we recommend next, that an application to the acre be made of twenty to thirty bushels of unleached or leached ashes, ten to twelve bushels of lime—either stone or oystershell—with two to three bushels of salt, which should be thoroughly mixed with the soil, if

possible, some weeks before the plants are set out. A liberal handling of the soil, thoroughly pulverizing it, before proceeding to the work of transplanting, is good economy.

MANURES.

On this point we are aware we shall differ widely from some of our ablest horticulturists, to whom we confess our inferiority in most things in the great science of horticulture; yet, in this we are confident that their own personal experiments, did their time permit, would lead them to the same results that we have deliberately arrived at.

And first, we would not use animal or barn-yard manures for the strawberry. We have eschewed their use entirely for the last six years. If friends who have watched our beds for years, say the soil was peculiar, and is not a fair test, we answer, that may be, but we have arrived at this positive conclusion from our experiments and observation in other locations and soils, as well as in our own garden, and every step has only confirmed us in the opinion, that animal manures are too stimulating and exciting to the plant for the full bearing properties of the strawberry.

Fine fruit has been raised, we know, in fair quanti-

ties and of enormous size, in the use of animal manures, yet we think the quantity and quality would have been decidedly increased by the use of vegetable instead of animal manures. The latter causes the plant to run too much to vines, and start its runners before it has even perfected the earliest part of the first crop of fruit, besides filling the earth generally with seeds, and undecayed portions of the straw, and fibrous portions from the barn-yard, which come into injurious contact with the numerous fibrous roots of the plant in its progress in the earth, which should always be kept as pure for the strawberry as possible.

Leaf-mould, decomposed turf or peat, well composted with new surface soil, or muck, ashes and lime, is a good manure for the strawberry. We wish it, however, distinctly understood, that few good soils need enriching at all for the strawberry; on the contrary, most of the soils (for instance, those in Western New York) would be more benefited by being depleted by an admixture of half river-sand.

It will be seen from the interesting articles in our Appendix A, from C. F. Peabody, Esq., near Columbus, Georgia, that his own observation and experience have led him to the same conclusions. Other cultivators might also be named who have arrived at similar results.

It is far better to feed the fruit properties instead of

the plant; for we opine it will be found that the over-feeding of the strawberry is one of the most universal and destructive errors in its cultivation.

Some use liquid manures, composed of cow and hen-droppings dissolved in a barrel of water; but they are not well adapted to assist the fruit-bearing properties of the plant, but are good if the object be to send out runners and increase the plants.

On the opening of spring—the latter part of April or the 1st May, in the latitude of the State of New York—it is well to give the plants an impetus, by liberally showering them every ten days or two weeks with a solution, in six gallons of water, of one quarter of a pound each of sulphate of potash, sulphate of soda, (Glauber salts,) and nitrate of soda, with one and a half ounces of sulphate of ammonia; or, if these cannot be conveniently obtained, use the same quantity of potash, sal soda, Glauber salts, and sal or muriate of ammonia; or a solution of either of them is beneficial if applied alone.

We have tried for many years various combinations in solution, but have been unable to obtain any so valuable as the first named.

We have always found plaster injurious to the strawberry, and ashes beneficial, when judiciously applied.

TRANSPLANTING.

This is a process to which the strawberry is sensitive. The plant will live under almost any treatment or any manner or time of transplanting, but will not always yield a full supply of good fruit unless this process is appropriately performed. First we speak as to TIME.

For large plantations, or for ordinary cultivators, the spring is perhaps the best season; certainly it is the time when it can be the easiest and most successfully accomplished. The ground is soft and moist at that time, and the weather is usually favorable.

The next season generally recommended is the month of September. Plants can then be easily obtained, and after the cool, moist fall weather has commenced, the ground works easily, and there is not much difficulty in making them live. There is one danger, however, to be especially guarded against in fall transplanting; that is, the plants may not get so firmly rooted as to be enabled to withstand successfully the severe frosts of winter. A liberal covering of straw will assist in remedying this matter. An advantage gained over spring transplanting will be, the earth will not be as liable to pack so very hard around the plants in the fall, as under the hot summer's sun and rains, and the plants will not be so likely to be checked

in their growth as in the droughts which often occur in June and July or August.

We have transplanted strawberry plants successfully for years, every month, from March until the 20th of October, without difficulty. With mulching, shade, and water, judiciously applied, it can be well done at any time. For our ordinary planting, we prefer the 1st of July for several reasons. The ground, if thoroughly prepared then, will not be subject to become so hard packed. The weeds will not be so troublesome. If the plants get well started, and are not checked in their growth, they will produce very nearly a full crop of fruit the following spring. We have found that these advantages will amply repay the little extra care in mulching, shading, and watering. Ten or fifteen days' later planting will seriously lessen the first crop, according to our observation. In spring planting, March will answer south of Philadelphia, and last of April and first of May for the north.

MANNER OF TRANSPLANTING.

The *best* way undoubtedly is, to take the first runners as soon as fairly set, and remove them with a transplanting-trowel, with the roots and earth undisturbed. This cannot be conveniently done, except the plants are in the same garden with the new bed. Neither

have we ever found the first runners more productive than the subsequent ones, unless they are stronger.

In most cases, plants come from a distance, and great care should be taken to get as large a proportion of the numerous fibrous roots as possible; and in order to this, the ground should always be well saturated with water, either artificially or otherwise, before the plants are taken up, and then the first thing to be done, is to mud the roots, by dipping them in a little mud-hole made in the garden soil, where the water has been poured and stirred, until it has become sufficiently thickened with the soil to leave a good coating of mud on the roots of the plants as they are withdrawn. This greatly protects the plants on a short or a longer transportation.

For transplanting, the earth should be levelled and made as flat as possible. If raised into beds or hills, it will invite the drought, to which the strawberry plant has a decided aversion. The plants should then be set out, leaving the roots in as nearly their natural spreading condition as possible; with the fingers press the pure earth compactly around the body of the plant, being careful not to set the plant too deep. If there is any old bark or decayed portion of the leaves on the plant, remove it before setting out: an old plant will usually renew itself by sending out a new set of roots on being transplanted, and it should be remem-

bered that the strawberry plant, while it places its roots, mainly, near the surface of the ground, yet a portion of its larger roots penetrate favorable soils to the depth of from two to four feet, and even a greater depth in some cases.

DISTANCE IN TRANSPLANTING.

The Alpines and smaller varieties should always be eight inches apart, while the larger varieties should be allowed twelve to eighteen inches. Put one plant in a place, and let no other remain nearer than the above distances, and it is not material to success in cultivation whether you plant in rows, beds, or hills, if you do not hill them up. We often set out in rows, two feet apart, and leave the plants one foot from each other in the rows; or, a method by which we have enjoyed great success in producing the finest fruit, has been to prepare a plot of ground, and cover it with strong plants one yard apart, and stimulate these, by a liberal application of liquid manures or soap-suds from the wash, to send out runners, which will soon supply the intermediate ground with plants of nature's own planting, which is a little better done than any one else can do it; care should, however, be taken to spread the runners so that the above distance of from eight to twelve inches can be preserved.

For *field culture*, set two plants in a place, one foot from the next, in rows three feet apart, so as to leave room for a horse-cultivator to pass between the rows, care being requisite not to approach nearer than eight inches to the plants, when at work among them. This whole process of field culture is the same in its general principles with that in the garden; except, for the convenience of a horse-cultivator to pass between them, the rows should one way be planted the same distance apart as corn; then the same treatment as to clean cultivation, and even water and mulching, as far as convenient, is desirable.

On the selection of a field for strawberries, it is very important to choose one free from all kinds of seeds and roots not decomposed.

MULCHING.

This consists in covering the surface of the ground with something that is not injurious to the plant, to protect it from the intense heat of the sun or extreme cold. From one to four inches in depth is the usual custom; the latter depth for pear, peach, and other fruit trees.

For the strawberry, we prefer, as soon as the plants

are set, at whatever season of the year, to cover the entire surface of the ground, including the walks, with tan bark, new or old, to the depth of one inch, care being taken that it is left very thin—only a slight coating—immediately around the crown of the plant. We have pursued this plan, and have never known a plant injured by it; on the contrary, they have been decidedly benefited. When using saw-dust, we have sometimes been a little troubled with mildew, but never with tan bark applied as above. Some of our most intelligent horticulturists say it is a specific manure for the strawberry, which others deny; we find it, at least, the best thing brought to our notice as a mulch. It is excellent to retain moisture and keep the earth in fine condition under it; very few weeds will ordinarily trouble us, where the tan is one inch in thickness, and altogether it is excellent. Where tan cannot be obtained, saw-dust will do, if not applied too thick. Leaf-mould is very good, if the soil is not already too rich. Straw is good, but green rowen or fresh-cut grass, if the seeds are not ripe, is better still; any thing, in fact, not injurious, that is convenient and adapted, can be used.

WATER.

The strawberry has a great relish for good, clear, cold water. We have often seen them take a strong shower-bath at midday, in the face of the hottest sun in July, without shrinking. A slight sprinkle, just to lay the dust, does not satisfy them, but a thorough soaking is what they delight in—say a pailful of water to every six or eight plants, or every four feet square of earth. If you say "this calls for a great deal of hard work," we answer then, "do not repeat it so often, but do it thoroughly whenever attempted." A few weeks since, we sent a friend some plants of new and rare kinds. A drought prevailed, and we feared he would neglect them, so we called to see them, and found he had set out and sprinkled them in the lightest, most delicate manner possible. Another friend to whom we gave a few plants at the same dry time, gave them a thorough and repeated drenching, and saved all his plants.

A garden engine is very convenient in a strawberry plot, for watering purposes, or a stream of water so situated as to irrigate, is better still. A water-ram, and water brought up in pipes, will accomplish the same thing. Ordinarily, during the bearing season, sufficient

rain falls, so that very little watering is needed: some seasons are so wet that no water is needed until the bearing season is over, and then the plants do not particularly require it; but a drought will soon compel the strawberry to cease bearing in ordinary soils. The remedy or preventive is water, water, every day, and sometimes every night and morning. The evening, just at sundown, is the best time to water plants; and in some cases it is desirable that the water should have been exposed to the sun and air before being applied, but we do not think this is necessary for the strawberry.

CULTIVATION.

Most persons bestow, erroneously, most of their labor in raising strawberries on their cultivation. On the contrary, if our directions so far are strictly followed, the work is mostly done, except gathering the fruit. We have very little work to do in the way of cultivation after planting, except watering and occasional pulling of weeds which appear through the tan, and neither of these ordinarily requires much time or labor. They must be kept clean and in good order, but we are very careful not to allow the hoe to be used nearer than eight inches to any full-grown plant, and,

consequently, it is seldom or never used about the beds after the first month's planting. The reason is, the numerous fibrous roots so interlace and fill the ground for a space of six or eight inches around the plant, coming so completely to the surface, that the use of the hoe will cut off great numbers of these little roots, and we are unwilling to have our plants maimed in this way. It certainly greatly injures their bearing. The fork or spade should be kept at the same distance, for the same reason. The only time, during the year, we loosen the soil in our beds with the fork, is immediately at the close of the season of bearing, selecting the time when the ground is moist. And yet, we repeat, the strawberries must be kept clean; and the reader may here see a reason for all the minute and particular description we have given in the preparation. It needs to be thoroughly done, because it cannot well be remedied afterwards. The plants will not admit of freely working among them, except with the hand, if not kept at an unusual distance from each other, without largely reducing the crop of fruit. If our object is large and abundant fruit, the roots must not be disturbed.

One qualification to the above: When new plants are set, unless prevented by mulching immediately, we, as often as every three days or week, for a month or so, hoe or rake the ground freely, and always stir

the soil as close to the plants, as often, and as much as possible, only being cautious not to disturb the roots.

RENEWAL OF BEDS.

This should be done once in three or four years, and the same ground should be planted with corn or potatoes for one season, and receive an application of lime, ashes, and salt, as advised in the article on the preparation of the ground, before it is again used for strawberries. The bed might be made to bear well, by a careful renewal of the old plants by their runners, for ten or a dozen years, but this would require rather more skill in cultivation than most persons possess.

Every year or two, if a strong runner has struck itself beside an old plant, we pull up the old plant instead of the runner, and are constantly thus renewing them. We always leave the best plants. The field cultivator has only to clean off the weeds, and prepare the soil in the spaces of three feet between the rows; allow the runners to cover that ground; then drive the cultivator or plough through, turning under the old row of plants; thin out his new ones to proper distances, and his system of renewal is complete.

WINTER PROTECTION.

Our experience is in favor of a slight winter protection. It costs comparatively no time or expense, on the approach of severe winter weather, to hastily scatter a thin coat of straw or old leaves over the plants; and they come out in so much better condition in the spring, and even the hardiest kinds bear so much better crops for it, that we never neglect it. Like mulching, almost any thing free from weeds, that will not smother them or mildew, will answer the purpose, but clean straw is preferable, except they need the decaying leaves.

Some years ago, we had an aged neighbor, who stood almost unrivalled in the cultivation of the strawberry. One season he set out, on the first of July, about one-fourth of an acre of fine Hovey's Seedlings. He almost constantly and carefully worked among them with the hoe, the rake, and water-pot, and I never saw a plot of so fine strawberry-plants as these had become on the approach of winter.

The old man was "very much set in his way," and among the things his creed discarded, was mulching strawberries; so, against my repeated remonstrances, he left them for the winter without mulching, with his

usual preparation, which consisted in placing a half-inch deep of good earth around each plant, in a circuit, to the width of six or eight inches, leaving the surface scolloped inwards towards the centre of the plant. The winter proved a severe one, and the old man was saddened in the spring, to find his fine plants drawn out of the ground to the length of three and four inches, and laid flat on the earth. One-tenth part of the labor he bestowed in hilling his plants for winter, appropriated to covering them with a little loose straw, would have saved them all.

EVER-BEARING STRAWBERRIES.

The Bush Alpines have always borne a succession of crops during the season, when planted in the northern shade of a fence, and well taken care of, watered, mulched, &c.

Some three or four years ago, the New-Orleans *Picayune* announced that Mr. Henry Lawrence, a gentleman of that city, had succeded in obtaining a seedling, called the "*Crescent Seedling*," which bore an abundance of large fruit for a continuous period of six or eight months or more, from March to December. We wrote to Mr. Lawrence, and his answer confirmed all the paper had stated; and he sent us in succession four

or five different importations of plants of the Crescent Seedling, by the steamer and otherwise, until at last we succeeded in causing them to grow, and awaited their bearing season, when, alas! they only bore a moderate crop, and ceased bearing as early as any other variety in our ground; thus proving a failure, as far as perpetual bearing was concerned, under our *ordinary mode* of cultivation. The plant has extraordinary vigor, a rampant staminate, exceeding all varieties we have ever seen in multiplying its runners. The experiment convinced us that it was not the variety, so much as the cultivation and soil, which gave it its continual bearing properties. Some experiments since made with this variety, in soils so reduced as to be little else than coarse sand, favor this idea. Mr. Lawrence wrote me at the first, that he reduced his soil by three-fourths of pure river-sand; and, although I reduced my garden-soil considerably, yet it remained still very much too rich for the Crescent Seedling to develop its perpetual properties. The various experiments, however, were by no means lost. An account from Mr. Lawrence's pen will be found in our article B, in the Appendix.

About this time, it was announced by the press that Charles A. Peabody, Esq., the horticultural editor of the *Soil of the South*, near Columbus, Georgia, had succeeded, by reducing the soil, and with plenty of water,

in making two well-known northern varieties—the Large Early Scarlet, and Hovey's Seedling—develop perpetual bearing qualities under the hot summer's sun in Georgia, furnishing fruit in quantities, from March till January. It was but reasonable to conclude, if this was the case in Georgia and New-Orleans, much easier could we hope, by the same means, to extend our strawberry season north, during the months of July, August, into September. In October last, in an interview with Mr. Peabody, he gave it as his deliberate opinion that, by the process he detailed and pursued, we could easily have an abundance of fruit from our strawberry vines until frost came. We take pleasure in inserting Mr. Peabody's plan and directions in full, in his interesting articles, in the Appendix, A.

On the 20th December last, Mr. Peabody took up a few plants in fruit from his garden, and placed them, with the soil attached, in a basket, and sent them by express to Messrs. J. M. Thorburn & Co., 13 John street, New York. On their arrival, on Christmas day, they were well loaded with large, ripe Hoveys and Early Scarlets — unmistakably so — together with a large variety of green fruit, of all sizes, from that of a pea upwards to full-grown berries. They remained on exhibition in their windows some two weeks, when they were politely handed to us, and we had them potted in a green-house, with soil composed mostly of

sand. The plants all grew finely; in March they came into blossom, and in May into ripe fruit. The foliage was very small, but healthy. They continued in blossom and bearing during the months of May, June, and July, without sending out a single runner, and some of the plants at the present time (the 14th of August) are in blossom, and have not started a runner. On one of the pots which had no runners started, we placed a very little rich soil, and in a week the plant threw up vigorous runners, caused by the slight addition to the richness of the soil.

The inference we draw from all this is, that no variety is ever-bearing under our usual manner of treatment, but that most kinds can be so trained, that, with a soil reduced largely enough with sand, and only vegetable manures applied, and a plenty of water, and mulching when needed, they will continue to produce fruit until the approach of frost. The whole tendency of our experiments in strawberries is in this direction. Professor Page has, in Washington City, it is stated, induced the Alice Maude to adopt the ever-bearing habit.

Amateurs and others will do well to try the experiment on a small scale, until they perfectly succeed; and then the large price of a dollar or more per quart, which the markets of New-York, Boston, and Philadelphia will pay for such fruits in August, will amply

repay for the production on a large scale. Learn well, by observation, all the habits and tendencies of the strawberry in this regard, and we think the thing can then be easily accomplished.

SEXUAL CHARACTER.

We now come to the great battle-ground of the giants, but will not enter the lists, if we may be permitted to quietly state a few things as our opinion, without intending to reflect upon, or having even remote reference to, any persons. It is very easy to see the manner in which some have been led into error, viz., the mixture, well-nigh universal, of different kinds of strawberries—an error productive of untold injury to successful cultivation. We have never seen two kinds of strawberry that might safely run in the same bed. On no account suffer it. The poorest kind will multiply its runners the most rapidly, and drive the well-bearing plants from the bed; particularly is this the case, where that poor kind is a staminate. We think the direction given by the late Mr. Downing and others, to place the staminates on each end of the same bed, with the pistillates in the centre, an unfortunate one, for the beds and the plants are usually very soon destroyed in

that way. We are very particular to place our staminates a greater distance from the pistillates: if 30 feet to 60 feet off, it is better. The bees and wind carry the pollen, and opposite sides of the garden, if the distance is 100 feet, will, we think, be found near enough to answer the same purpose. Neither would we allow pistillates, such as Hovey's Seedling and Burr's New Pine, to run together, but be very particular to keep each kind distinct and apart. We think it is Mr. Longworth who has stated, that if we place a single staminate plant, like the Large Early Scarlet, in the centre of a productive bed of a pure pistillate variety, in less than two or three years, that one plant will drive every good fruit-bearing plant out of the bed.

This is one reason why so many strawberry beds fail after the first bearing season; so we repeat in the strongest manner, get *pure* plants—difficult, we know—and on no account permit *any two kinds to run together;* place boards on edge between them, or in some way protect them from each other.

After this episode on a very practical point, we may be permitted to say, there are strawberry plants we call staminate, because they exhibit to the eye very distinct stamens. Our plate will illustrate this. Another kind we call pistillate, because the naked eye can discover developed in the blossom only the pistils. Most of our intelligent horticulturists assure

us, that the best staminates will only produce a part of a fair crop of fruit, while the pistillate varieties will produce no perfect fruit at all, without being impregnated by some staminates in the vicinity; but when thus impregnated, the pistillates produce an abundance of the finest fruit.

The interesting and accurate experiment of Mr. Huntsman, in the Appendix, C, sets this matter in a very clear light.

Some of the staminates of recent introduction, like Walker's Seedling and Longworth's Prolific, are so very desirable, that every cultivator should have one or both; it is, therefore, only important to notice the presence of the staminates in every collection of varieties, keep them distinct, and no sacrifice is required to conform to this theory, which seems to be pretty universally established. Mr. Longworth's article in the Appendix, D, gives an interesting account of its discovery.

Another series of plants are called Hermaphrodite—like Longworth's Prolific—because both stamens and pistils are in a greater or less extent developed, and they are represented to bear well, being alone.

The great war that has raged so fiercely on the borders of the strawberry kingdom during the past year or two, has been on the point, whether staminates ever change to pistillates, or *vice versâ*. For many years

we have noticed, with scrupulous care, these distinct characteristics of the various strawberries when in blossom, and we have never seen the first symptoms of

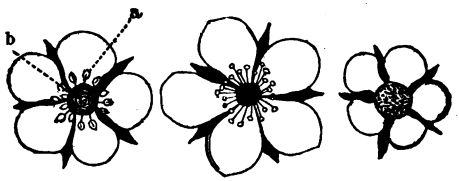


FIG. 1. FIG. 2. FIG 3.

Fig. 1. A perfect flower furnished with stamens and pistils. *a*, the stamens. *b*, the pistils, hermaphrodite.

Fig. 2. A staminate or male flower.

Fig. 3. A pistillate or female flower.

FIG. 4.

Fig. 4. A perfect flower, with a stamen and pistil detached. *a*, the anther. *b*, the filament. *p*, the pistil.

change in any variety. We do not know that a change in open-air cultivation is now much contended for from any quarter. We think the mixing of plants causes staminate and pistillate blossoms to be seen together. In forcing, we are told, by high authority, that some plants, like the melon, &c., change their sexual character, and why not the strawberry? We do not know that this point, that the strawberry does so, has yet been fully established.

The English varieties are mostly staminates, and bear fruit of extraordinary size and flavor; but we think not in so large quantities as some of our pistillates. Certainly all the English staminates prove comparatively only second-rate in our soil and climate.

FORCING.

On this point our experience is very limited, having been confined to small experiments during the past winter: we therefore give the best information we have been able to obtain, from the highest English authorities.

In the *London Gardener's Chronicle*, edited in the Horticultural Department by Professor Lindley, we find the following directions from that most eminent horticulturist, Mr. Paxton:

"Select for this purpose, in the middle of August, a sufficient number of the best runners from approved kinds to have choice from, and plant them six inches apart, in beds, upon a strong border in a dry and sheltered situation. As soon as the leaves have withered, mulch them lightly with well-rotted manure, and if very severe weather occur, protect them for the time with fern or litter. They must be kept the following

spring free from weeds and runners, removing also any flowers as they appear. Towards the latter end of May or beginning of June, whenever dull or rainy weather may occur, remove them carefully into forty-eight-sized pots. It is optional with the grower, whether one, two, or three plants are put in one pot, according to his object being quality or quantity; but we, desiring fine fruit in preference to number, only place one of the strongest or two of the weaker in one pot, using enriched melon soil or turfy loam. Place them, when potted, in a situation where they can be readily shaded for a short time, and receive regular supplies of water if necessary. About the latter end of July, or early in August, these pots will be filled with roots, when the plants must be repotted into flat thirty-two-sized pots, usually termed strawberry pots, and at this time plunged in old tan or coal ashes. The best manner of plunging them we find to be, forming beds wide enough to contain five rows of pots, when plunged, upon a hard or gravelly surface, to prevent them rooting through, the sides supported by slabs of the same width as the depth of the pots, and filling them up with old tan or ashes; the plants remain here until wanted to take in, and are easily protected from severe frosts. It will be found an excellent plan to preserve the latest forced plants, which are not much exhausted, for forcing the first the next season; these,

from their long period of rest, and well-ripened buds, are predisposed to break earlier and stronger than the others; some of them, if the autumn is moist, will be excited, and produce flowers, which must be immediately pinched out; they should have their balls carefully reduced, and be repotted in larger pots early in August, protecting them from the late autumnal rains, and from frost."

"For succession," Mr. Paxton says, "strong runners are taken up in September, and planted about six inches apart, in manured and well-prepared beds, four feet wide, in a somewhat sheltered situation; there they are allowed to remain until the following July, during which period they must be kept very clean from weeds, have the flowers and runners regularly pinched off, and be watered whenever likely to suffer from drought. About the middle of July they are potted in small thirty-two-sized pots, two plants in a pot, taking the greatest care that neither roots nor leaves are damaged in the operation, and an important part of it is to press the earth firmly about them; the soil used is two parts loam to one of well-rotted dung. Beds which will hold five or six rows of pots are then formed in the following manner: Level the surface of the ground, and spread upon it a layer of coal ashes; above which must be nailed firmly slabs, or any rough boards, as wide as the depth of the pots, which are

then to be plunged to the rim in spent bark or ashes. All that they will here require is attention to watering when necessary, and a slight protection with fern, or other light covering, during severe frosty weather. I always preserve from 300 to 400 of the latest forced plants of the above description, and after having carefully reduced their balls, repot them in large thirty-two-sized pots in July, treating them afterwards precisely as the others. I find these, by having their buds formed early, (through the slight forcing they have received,) and becoming very strong, are admirably adapted for the first crop, and always repay me for the extra trouble. Begin forcing with a temperature of 40°, increasing to 50° when in bloom, and to 55° when ripening."

"Mr. Brown, gardener to Lord Southampton, at Whittlebury Lodge, near Towcester, says, that Mr. Paxton's method of preparing strawberry plants for forcing is a good one where time and trouble are of no consequence: but for the last fifteen years he has adopted a plan which answers well, and by which good strong plants are procured in one month from the present year's runners.

"The compost used is good strong loam, well mixed with rotten dung from the hot-bed linings; twenty-four-sized pots are the best for Keene's Seedlings, and thirty-twos for Grove End Scarlets. The latter variety

answers for early forcing better than any other sort, when strawberries are wanted by the end of March.

"Having filled the pots with the compost, they are removed at once to the strawberry quarters, and arranged on each side of the rows, amongst the runners. The middle of July, when the plants are emitting roots, is the proper time to begin the operation of layering: having previously prepared a quantity of pegs, the runners that are rooted into the ground are carefully removed, and their roots inserted in the pots, and pegged down. Put three plants into the twenty-four pots, and one in the thirty-twos; they immediately begin growing, being supported by the mother plant, and will only require occasional watering in dry weather.

"When the plants are well rooted, which is in about one month, detach them from the old plants, and remove to their winter-quarters.

"Beds are prepared for them with a bottom of coal ashes, and they are plunged in old tan; each bed surrounded with a stratum of coal ashes six inches wide, and as high as the top of the pots, which prevents worms from working amongst them."

SEEDLINGS.

Since the introduction of Hovey's Seedling, this department of strawberry culture has had new life and vigor infused into it, and has resulted in affording high gratification to those engaged in it, and proved of decided benefit to our country.

This fruit is so soon and so easily raised from seed, that the process invites to a very attractive series of experiments. Almost any one can experiment in a small way; and the person who shall produce a strawberry of the size of Hovey's Seedling, or of the size and productiveness of M'Avoy's Extra Red, combined with the exquisite flavor of Burr's New Pine, will be a benefactor.

Perhaps the easiest way is to select the largest ripe berries of the best class of pistillates, raised in close proximity to one of the best staminates, and crush them in a bed of pure sand, mix them, and let the seeds dry and ripen for two weeks or a month; then sow them in light soil, in a partially shaded spot in the garden, carefully water, and in winter protect them with a covering of straw; in spring transplant them, one plant in a place two feet apart; carefully remove all runners until the plants have borne; select the best

for further trial, and throw the rest away. A better way, if convenient, is to sow the seeds and sand in a cold frame, provided in a northern exposure, and transplant as above directed.

CLASSIFICATION.

Mr. Elliott says, "Authors have classed the strawberry as SCARLETS, the original type being our wild strawberry; PINES originating from Pine or Surinam strawberry; WOODS and ALPINES from the common wood strawberry of Europe; HAUTBOIS, or *High-wood*, from Bohemia; CHILI, from South America.

"The SCARLETS are designated in their character by small flowers; long, thin, light-green, sharply serrate leaves; acid or sub-acid fruit, of bright scarlet color, with seeds deeply imbedded." The Large Early Scarlet, Methven, Duke of Kent, and others, are of this class, and yet the flowers of the first two are rather large.

"The PINES are designated by large flowers; broad, dark-green leaves; fruit of pineapple flavor, and generally soft in texture; seeds slightly imbedded." Hovey's, Black Prince, Burr's New Pine, British Queen, &c., are of this class, and yet Hovey's and New Pine have quite small flowers: the two others are large.

"The ALPINES and WOODS have small flowers, perfect in their organs; small, thin, light-green leaves; fruit small, sweet, and separating freely from the calyx.

"The HAUTBOIS have large, pale-green leaves, on tall foot-stalks, the fruit-stalk tall and erect, the fruit of a dull red or purplish color.

"The CHILI, designated by hairy, thick, obtusely serrate leaves, fruit pale-red and insipid.

"The GREEN Strawberries have light-green foliage, plaited fruit, solid flesh, so unworthy cultivation as rarely to be found in this country.

"We have dropped the arrangement into classes in order."

The above classification is a distinct one, but we do not think quite correct, neither can we find or make one that is distinct and correct.

SELECTION OF VARIETIES.

This is a point of no small difficulty. One person wishes only the finest-flavored varieties for his own table, of which Burr's New Pine and Swainstone's Seedling are the head; another wishes all the showy and fancy varieties, such as the Bicton Pine, Black Prince, Alice Maude, &c.; another, still, cultivates for market, and wants large, bright-colored, solid-fleshed,

productive fruit, like McAvoy's Extra Red, Moyamensing Pine, and Walker's Seedling. Again, the manner of the cultivation of some persons will conform to some varieties, and be opposed to others, perhaps superior; or some soils and climates are naturally adapted to some varieties, and unadapted to others, so that the custom we have adopted in years past, we would recommend to those going into the cultivation of the strawberry, viz.: Obtain a plant or two of several of the best varieties named, and cultivate them experimentally for two or three years, and then select the most successful ones and discard the others. Another difficulty arises from the new developments constantly making, which tends to exalt a neglected variety in some sections of our country, and depress a favorite one in other parts, so that we shall, it is probable, in future editions take the liberty of amending or changing our opinions respecting some of the different varieties named, as time and enlarged experience shall demand.

Another point of delicacy still arises, from the fact that many of our friends have produced seedlings of which they think and speak in the highest terms; but from what little we have seen of them, and their trial being mainly in the hands of the originators, we do not feel authorized to speak of them pro or con.

Some varieties we do not name will doubtless prove

altogether superior to some we do speak of, and we would not intimate that some of the varieties we are not acquainted with may not prove of the first class.

We shall speak mainly and freely our own experience and observations of the peculiarities of the different kinds as manifested during the last ten or twelve years or less, and in a plain, distinct manner, give our present views of them, not being confined to or having much reference to the usual condensed pomological descriptions or classifications, which we think are not so important to the popular mind, and we are not writing a work to instruct botanists or learned pomologists.

The first six varieties named and described would, all things considered, be our first choice in a selection confined to that number. The next twelve will follow very nearly, not entirely, in their regular order as our next choice, reference being had to the particular descriptions for the prominent characteristics of each, as fitted for the amateur, the family, or the market-man.

M'AVOY'S SUPERIOR,

The new $100 prize seedling of the Cincinnati Horticultural Society in 1851. It was originated in that city by Mr. D. McAvoy, in 1848, on loamy clay soil underlaid with limestone, and was called out by the offer of a premium of $100 by that Society, at the instance of that energetic horticulturist, Nicholas

Longworth, Esq., for a pistillate strawberry which should prove, on a four years' trial, to surpass all other known varieties in size, flavor, and productiveness.

M'AVOY'S SUPERIOR.

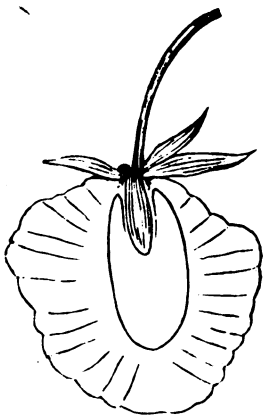


FIG. 1.

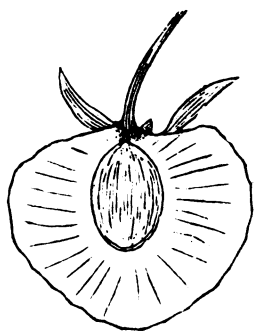


FIG. 2.

The committee concluding that this fulfilled the conditions, reported in its favor, and the report was adopted by the Society. In September, 1851, we obtained two plants, and in so far as our observation of it has extended in our own and several other gardens, in different portions of our country, it is superior, in the average size and productiveness, to any other variety we have seen; and while it is good, and when properly ripened of high flavor and delicious, yet we do not think it equals, much less surpasses, Burr's New Pine in flavor. It is pistillate, hardy, vigorous, dark serrated leaf, long

foot-stalks, trusses of fruit full and usually well formed, but occasionally a berry not entirely filled out; the runners are not so numerous as to be troublesome; fruit very large, often over five inches in circumference, rich dark color until over-ripe; irregular, conical, roundish; large seeds, slightly sunk; flesh crimson and white, tender, juicy, with a core of rather open and coarse texture.

Ripens medium season, and rather too tender for a market fruit, except for short carriage distance.

HOVEY' SEEDLING.

This has been truly called a noble fruit, and is an honor to the originator, Mr. C. M. Hovey, of Boston. It has undoubtedly taken more prizes in the various Horticultural Exhibitions of our country, from Maine to Louisiana, than any other variety, and it retains the same position at the present time, although it is not equal in flavor to Burr's New Pine and others, or of the average size of McAvoy's Superior and some other varieties; and in almost every quarter, we hear more or less complaints of its fickleness in bearing, mingled with the strongest approvals of its productiveness.

Notwithstanding all murmurs, its flavor is good when well ripened; it is too often picked and tasted when first colored and unripe; and some of its berries so surpass all other varieties in size—often five and six and sometimes over *eight* inches in circumference—

as to carry along the judges at our exhibitions; and the size under good cultivation always proves satisfactory.

We have, in times past, been embarrassed by its failure in bearing, but we are inclined to think it was in a great measure owing to our want of knowledge of its habits, and consequently erroneous cultivation. It requires a great deal of water, or moist soil, and will not bear so rich soil as Boston Pine and many other kinds; and the simple reduction of the soil to the common grade has sometimes changed the barren into productive plants. It originated in 1834. The vines are vigorous, leaves large in rich soil, rather light green, and fruit-stalks are of good length. Fruit is very large, roundish-oval, conical; color, rich scarlet; seeds slightly imbedded; firm flesh; well adapted for market, and of medium season; flowers pistillate.

As will be seen in Appendix, A, Mr. Peabody, of Columbus, Geo., has succeeded in making this variety ever-bearing.

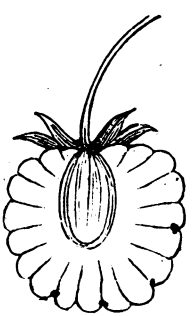
MONROE SCARLET.

This variety has not been so extensively known or so largely tested as Hovey's Seedling and Burr's New Pine. It originated in Rochester by those enterprising nurserymen, Messrs. Elwanger & Barry, and was first exhibited by them at the June meeting of the "Horticultural Society of the Valley of the Genesee," we think in 1850, where we first saw it, and took a plant home with us.

We introduce it in this connection, because we think it will prove remarkably productive. Such has been the case in our trials of it; it has uniformly surpassed all others in bearing. We have counted over seventy ripe berries of good size, the largest measuring four and three-fourths inches in circumference, on a single plant less than one year old. We are aware that the Alpines, and some other kinds, will produce many more berries in a single hill, but they are very small fruit, and we presume they will not produce near the quantity on a single plant of that age. It is a hybrid of Hovey's Seedling and the Duke of Kent. The plant is very vigorous: pistillate; fruit large, roundish, short neck, and beautiful, of good fair flavor, hard flesh, a long bearer, and good for market; does well partially shaded.

BURR'S NEW PINE.

This variety originated in Columbus, Ohio, in 1846, on a clay soil, and is remarkable for its agreeable, delicious, aromatic flavor, surpassing all other varieties; and also for its early bearing and uniform productiveness. It is usually of large medium size, although we have seen on exhibition large dishes of fruit



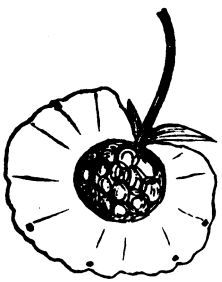
BURR'S NEW PINE.

measuring nearly four inches in circumference, and have measured single specimens from our own garden full four and a quarter inches, and when thus well grown, and on exhibition, it will bear off the first prize from Hovey's Seedling, and all other varieties; yet it is, under ordinary cultivation, nearer the size of three inches in circumference. It is a great favorite of families of exquisite taste, either for the hand or for the table, and we have proved it to be the earliest of sixty varieties in the same garden to ripen its fruit, and one of the latest to cease bearing; and occasional plants have produced a small second crop in the autumn, while standing without watering in the open garden. The fruit is large, round, conical and even; color, pale red; seeds very slightly sunk; flesh, whitish-pink, sweet, and too tender for a market fruit; quite productive, and berries perfect; the foliage is large, and the plant is vigorous and hardy. It is indispensable for private gardens. Pistillate.

LONGWORTH'S PROLIFIC.

The two remaining plants of the first six are staminate, or hermaphrodite. This variety originated in Cincinnati at the same time with McAvoy's Superior. Mr. Longworth furnished the seed for both plants to two cultivators, McAvoy and Schnecke, the former of whom produced the Superior, and the latter this

variety, which at first was call "Schnecke's Hermaphrodite," but afterwards named by the Cincinnati Horticultural Society, "Longworth's Prolific," in honor of Nicholas Longworth, Esq. It is a great favorite with the gentleman whose name it bears, who says "it will do what no other variety in this country or Europe has ever done—bear a full crop of good fruit standing alone." In a note to Mr. Barry in the fall of 1853, he says, "You will find the *Prolific* of more value than all the seedlings ever raised." Mr. Elliott, in his Guide, says, "For market culture we regard it of more value than McAvoy's Superior;" and we have heard Dr. Warder bear the same high testimony to its excellence.



LONGWORTH'S PROLIFIC.

It has been almost impossible to get the genuine variety. In our attempts, we have had repeated failures, until, at last, Mr. D. McAvoy politely took up for us two plants, while in bearing, and enclosed them in a letter. The plants lived, and we have been enabled to experiment with them intelligently. We have also seen the genuine in a few other gardens, hundreds of miles apart, during the last two seasons; and everywhere we have seen it, if it had a fair

chance, it has done well. Many will, doubtless, discard "Longworth's Prolific," who have only tried spurious kinds.

Our limited experience will not enable us to speak so decidedly as some of those we have quoted, yet we can say we are much pleased with it, and hope it will equal the high expectations excited; so far, it seems to excel any hermaphrodite of our acquaintance in size and productiveness, and is of good flavor. The Pennsylvania Horticultural Society had it on exhibition from the garden of Caleb Cope, Esq., in 1853, and speak of it as "very large, roundish obovate, brilliant crimson; seed of the same color, sometimes yellowish, set in rather deep indentations, with rounded intervals; flesh red, flavor fine, quality 'very good,' a variety of great excellence, perfect in its sexual organization, and remarkably productive, a rare circumstance with staminate varieties of large size." The plant is very vigorous and hardy; large broad leaf, long foot-stalks, setting the fruit well up in large full trusses, productive and sure bearer; ripens at the medium season, and only loses its fine color when over-ripe. We have seen the fruit from four to five inches in circumference.

WALKER'S SEEDLING.

The last of the six we name above is also one of the new berries, not so extensively proved as yet. The Hon. Samuel Walker, ex-President of the Massachusetts Horticultural Society, originated and sent it out some two or three years ago, when he politely sent us a dozen plants for trial, which trial has been very satisfactory. The Society above-named has during the last season renewed its endorsement of it, and Mr. Barry, of Rochester, also approves it there. It is entirely distinct from all other kinds. In form it resembles the Large Early Scarlet, or more nearly the Crimson Cone, but rather larger than either; in color it is as dark crimson or purple as the Black Prince. A vigorous, hardy, good staminate, of excellent flavor, "best" quality, and productive; of medium season.

M'AVOY'S EXTRA RED.

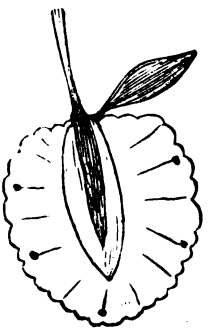
This is another of the new Ohio strawberries, originated by Mr. Longworth in his garden, or by his tenant and gardener, Mr. D. McAvoy, at the same time with the Superior, which variety it appears in in every respect to equal, except in flavor. The Fruit Committee in Cincinnati report it as "large, beautiful, and very prolific; quality medium, not high-flavored." It has an agreeable, sub-acid flavor, somewhere near the grade of Hovey's Seedling. We think

it will prove a valuable market fruit: it is very vigorous and hardy; fruit large and handsome, and keeps well. We have seen it exhibited for forty-eight hours, after twenty miles' land carriage, when it remained the brightest and most showy fruit of forty choice varieties. The Pennsylvania Horticultural Society in 1853 pronounced it "extraordinarily productive," and quality "good." It is pistillate, and its only fault, as far as we are aware, is the lack of high flavor, which we do not consider indispensable for a market fruit.

MOYAMENSING PINE.

It bore off the premium offered by the Pennsylvania Horticultural Society in 1848, for the best seedling strawberry exhibited that year, and is described as follows: "Fruit rather large; roundish conical; deep crimson; seeds crimson, set in rather deep depressions, with rounded intervals; flesh red; flavor very fine; quality 'best;' pistillate leaf, large, with crenate serratures." We should not place the quality as high as "best," although it is good. In New Jersey and Pennsylvania it has the best reputation as a fine market fruit, and our experience confirms it. In fact, we are inclined to think that this variety and McAvoy's Extra Red *may* prove our *best* market kinds, and, as such, a great acquisition. That point, however, is not yet established.

JENNEY'S SEEDLING.



JENNEY'S SEEDLING.

THIS originated in New Bedford, about the year 1845: is of good size, high flavor; and has been highly recommended by the Massachusetts and other Horticultural Societies. We have successfully cultivated it for four or five years, and think its advantages are, its good fair size, bright handsome color and form, sprightly rich flavor, lateness of season in bearing, and sound flesh, fitting it for a first-rate market fruit, or for preserving; its defects are, its not being the largest size and only a medium bearer. The plant is vigorous, and blossoms pistillate.

LARGE EARLY SCARLET.

This has long been the standard staminate. It bears almost everywhere a tolerable crop with fair treatment. It is early, and, as we see from Mr. Peabody's article in the Appendix, under his treatment has become a perpetual bearer. It is of medium size, handsome oval form, good—rather acid—flavor, and bears carriage to market tolerably well.

Its good qualities are its uniform, although not large productiveness, early season and good flavor; its de-

fects, its want of size and of large productiveness, and its tendency to throw out an overgrowth of runners. It is valuable as an impregnator.

CRIMSON CONE.

A very bright, handsome, brisk, acid fruit, of medium size, uniformly conical, rich dark crimson, and quite productive. Its seeds lie deeply embedded, giving the surface a beautiful rasp-like appearance. Its defects are, its second-rate size and acid flavor. It was always a favorite of Mr. Downing's, who preferred its acid flavor for the table, bringing it to its proper tone by a liberal addition of sugar.

It has supplied the New York market with more fruit the past season, we think, than all other varieties combined.

The plant is very vigorous—blossoms pistillate.

RIVAL HUDSON.

A very productive market fruit, of only medium size, and rather acid flavor: popular near Rochester, although we think it is, or ought to be, superseded. Pistillate.

GENESEE SEEDLING.

A large and very handsome fruit. It originated with Messrs. Elwanger & Barry. The plant is vigorous,

with long stout foot-stalks, productive for a staminate, and of good medium flavor.

WILLEY.

This is an extraordinary bearer of round, medium-sized fruit of pleasant, sprightly, although not high flavor. This and Monroe Scarlet are the only strawberries I have ever seen that bear apparently in clusters. It is not unusual for the Willey to produce sixty and seventy berries on a plant, and should never be cultivated in masses. It is solid enough for market, and its main defect is its size, and second-rate flavor.

PRINCESS ALICE MAUDE.

A handsome, long, oval, English fruit, of large size, fair productiveness, and medium flavor. It is unique in appearance, very early, and in the vicinity of Washington City it has become very popular, Professor Page having succeeded in inducing it to adopt the ever-bearing habit. Its main defects are want of large productiveness and high flavor. Staminate, and good for market.

BOSTON PINE.

A good staminate seedling of Mr. Hovey, of Boston, and for our own cultivation we should give it a very early place in our lists; but with the mass of cultiva-

tors it is not so popular. It wants the best clean cultivation, with every plant two feet apart from all others, and will bear richer soil than almost any other variety; with such treatment it will produce a good crop of uniformly large, round, handsome fruit of high flavor.

BLACK PRINCE.

A large, handsome, very dark crimson or blackish-purple fruit, of English parentage and pistillate flowers. The plants are vigorous and hardy, quite productive, usually too watery and insipid in flavor, but sometimes we have found it to be of the richest flavor. A few plants are worthy of a place in most private gardens.

LIZZIE RANDOLPH.

A very large showy fruit, quite productive, but of such inferior flavor as to discourage its dissemination. It is pistillate, and originated in Philadelphia.

SWAINSTONE SEEDLING.

An English staminate of the highest flavor and great beauty, but unfortunately so fickle in its bearing habits as to drive it from all but the amateurs' and a few of the best nurserymen's gardens.

RICHARDSON'S EARLY.

A medium-sized staminate, of medium flavor and fair bearing habits, but there are better ones.

RICHARDSON'S LATE, AND CAMBRIDGE.

Two pistillates. The first of good size and flavor, and both tolerably productive. The Cambridge very much resembles Richardson's Early.

MYATT'S BRITISH QUEEN.

A splendid English variety of the largest size and richest flavor, but unfortunately, in this country, so few of the blossoms ordinarily produce fruit, that it is in most places despaired of. Staminate.

LARGE WHITE BICTON PINE.

A new English staminate variety, of large handsome fruit, long oval shape, sometimes flattened, of the highest flavor, white color, with a bright blush cheek on one side. It is quite a novelty, and proves to be more productive than was expected. It will find a place in most amateurs' gardens in limited quantities.

BARR'S NEW WHITE

Is said to be superior to the above, but we have not

yet tried it. In Boston it is spoken well of. A friend assures us it is superior to the Bicton Pine.

PROLIFIC HAUTBOY.

Prolific certainly of runners, so as greatly to injure its value, if it had no other defect; is a very vigorous plant, producing long, oval, purplish, dingy berries of a rich but very peculiar flavor, agreeable to some, but the reverse to others. It is staminate, but hardly desirable.

We might continue this list, and enumerate full one hundred other varieties which we have had an opportunity of personally testing; but we cannot name any variety possessing any superior quality, not possessed in an equal or larger degree by some of the best of those we have named; in fact, quite a number of the varieties we have noticed are not equal to many other varieties we might name, of our own seedlings and others; and we have only referred to them because they are popular in many parts of the country, and supposed there to be a first-class fruit.

Many of our horticultural friends and nurserymen may be disappointed that we have not referred more extensively to their favorites; in answer we say, we we do not suppose them superior to some of those described. If they are, they will soon be extensively

proved and noticed. Others, we do not personally know any thing about, which are not merely recommended by individual originators, but Horticultural Societies of the highest authority; for instance, the new seedling "Pennsylvania," of Philadelphia, and Scott's Seedling, &c., of Boston. A seedling that will surpass McAvoy's Superior in average size, productiveness, and good flavor, or Hovey's Seedling in size and beauty, or Burr's New Pine in flavor, productiveness, and early fruit, and Longworth's Prolific in size, beauty, productiveness and flavor as an hermaphrodite, has got to be an extraordinary fine berry, but there is hope that it may be obtained.

The following *analysis* of the strawberry plant (vines) was made by Mr. Bilius, Kirtland, Ohio.

In 116 grains of the ashes of the GARDEN STRAWBERRY he found

Potash	33.154
Lime	26.519
Carbonic Acid	23.008
Magnesia	8.908
Phosphoric Acid	6.970
Silica	6.117
Charcoal and Sand	3.103
Soda	2.794
Perphosphate of Iron	1.515
Sulphuric Acid	1.469

Chlorine	.718
Organic Matter and Loss	1.739
	116.000

In the Annual Report of the Progress of Chemistry and allied Sciences for 1847 and 1848, we find the following analysis of the Strawberry by THOMAS RICHARDSON:

THE PLANT.

Potash	38.65
Lime	12.20
Silica	2.58
Perphosphate of Iron	8.65
Magnesia	5.85
Phosphoric Acid	15.58
Chlorine	1.23
Soda	9.27
Organic Matter, Loss, &c.	5.99
39 per cent. of Ash.	100.00

THE FRUIT.

Potash	21.07
Lime	14.20
Soda	27.01
Silica	12.05
Perphosphate Iron	11.15
Phosphoric Acid	8.59
Sulphuric Acid	3.15
Chlorine	2.78
Magnesia	Trace
41 per cent. of Ash.	100.00

The great variation in these analyses is probably principally owing to the greater age of the vines in one case than the other: perhaps something is due to soil and climate also.—Ed.

THE RASPBERRY.

WHEN well grown, and of the best varieties, this is one of our most wholesome and excellent fruits. It deserves a far more general and better cultivation than is usually given to it; and its free use, succeeding the strawberry, as it does, would doubtless conduce to the general health of the community.

If grown without care, it is often small, hard, and with little good flavor; but when highly cultivated, it is large, melting, and delicious. It will repay the best care, and to very few fruits is this so indispensable as to the raspberry.

A rather moist, cool location, on the north slope of a side-hill, or shade of a fence, is to be chosen; and the soil should be deep and rich. A deep loam is preferable, but other soils can be made to answer the purpose; it should be well broken up, trenched and pulverized to the depth of two feet, then enriched with well-rotted manure, vegetable, if convenient.

The plants should be shortened ten or twelve inches at the top, and set out very early in the spring, at a

distance of three to four feet apart, not too deep, in pure earth, with a good proportion of the roots lying near the surface. Keep them clean, and well staked, with not more than three or four canes in a hill. On gathering of the fruit, cut out all the old canes but those of the present and the last year's growth, and leave not more than eight or ten of those in a hill to ripen for another season of bearing, one half of which should be transplanted in the following spring.

On the first of September pinch back the most vigorous shoots, so as to check the flow of sap and ripen the wood.

WINTER PROTECTION.

The question of winter protection is a difficult and important one. The ordinary custom is to leave them exposed in the garden to the severity of winter, and as a consequence, the FASTOLF, FRANCONIA, and TRUE ANTWERPS, are rendered almost worthless. Even in Kentucky, those choice varieties require winter protection. The easiest way is to bend the canes down and cover them slightly with earth. Some tie them up in a withe of straw, or evergreen boughs, but these are not always sufficient.

We have sometimes taken up the plants in the fall,

and buried them in sand, and on the earliest opening of spring set them out with care, and in this way have raised extraordinary crops; but we have not proved this last process so fully as to incur the responsibility of recommending it. It would require to be very carefully done, so as to preserve all the fibrous roots, together with the advantage of favorable soil, for it to succeed so well.

The raspberry is used in a variety of ways, viz., for the hand, the table, pies, tarts, jelly, jam, ices, syrups, brandy, wine, and vinegar.

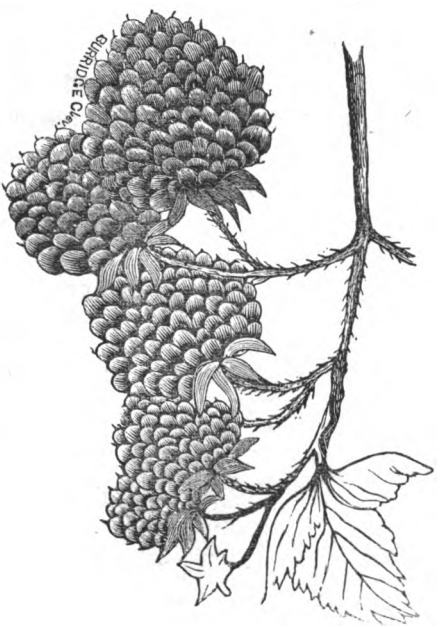
The profits of production are very large; often, in the vicinity of New York, selling for from $500 to $600 per acre.

They will continue in bearing some five or six years, but will not be in perfection, ordinarily, until the third year after planting.

We will name but a few established varieties. Dr. Brinckle, of Philadelphia, and some others, have gained much credit with their fine seedlings, but how extensively they have been proved, or if any of them surpass the *Fastolf*, *Franconia*, *Antwerp*, &c., we are unable to say. The "*Colonel Wilder*" and some other seedlings are said to be perfectly hardy; and if that is the case, and they prove equal in other respects, they will certainly be a decided acquisition.

FASTOLF.

This fine variety originated at *Fastolf Castle*, near Yarmouth, Eng., where it attained a high reputation, which it has nobly sustained in this country.



THE FASTOLF.

It is not quite so hard for market fruit as the Antwerp, but it is rather soft, and of rich high flavor, and the fruit is very large, of a bright purplish-red, and is a large bearer. It requires winter protection.

FRANCONI.

This fine variety was said to be originally from France, but a few knowing ones insist that its advent

was nearer home. However that may be, it is a valuable kind, the most hardy of the large varieties which we refer to; produces most abundant crops of fine fruit, which bears carriage to market well. It is some ten days later than the Antwerps, and requires only slight protection. The fruit resembles the Fastolf, but rather more acid flavor; canes strong and branching, and leaves rather narrow.

RED ANTWERP.

RED ANTWERP.

This variety has long been the standard sort, both in this country and Europe, and is a very fine fruit. So many spurious sorts are now sold under this name, that it is difficult to obtain the genuine, in many places. The *Common Red Antwerp* is smaller and round; while the true is large, regularly long conical, dull red, with a rich sweet flavor.

The canes are of good strength when well cultivated, and the fruit ripens early in July.

It also requires winter protection.

YELLOW ANTWERP.

Much resembles the Red Antwerp except in color, and is a very handsome and excellent fruit. Whether Dr. Brincklé's new seedlings, Colonel Wilder, and Orange, will supersede it or not, as Mr. Elliott suggests, we are unable to say.

KNEVETT'S GIANT.

We have sometimes thought this variety a better bearer than the *Red Antwerp*, but we do not know as it has any superiority other than being more hardy.

KNEVETT'S GIANT.

This, however, bears a much larger crop, in consequence of winter protection.

LARGE-FRUITED MONTHLY.

This is a new variety, that we have had in bearing in our garden some years, and have often gathered a moderate amount of fruit from it in September and Octo-

ber as well as in the early summer. With good cultivation and thorough pruning, it produces full crops of fruit of the character, but not equal to, the Antwerps.

OHIO EVER-BEARING.

A variety of the American Black, which has for years borne us several crops during the season, of large, good fruit, ripening its last crop amidst the snows and frosts of November.

THE BLACKBERRY.

For the most part, the production of this fruit has heretofore been mostly confined to the woods and new lands of our country. In our former residence, Palmyra, Western New York, from time immemorial, almost, the market-women have made their appearance every two or three days during the season, with wagon-loads of from fifteen to thirty bushels of blackberries, which they sold at the prices of three, four, to five cents per quart. The fruit was often small, hard, and unripe, similar to much that is usually sold in the New York markets. Some of this fruit is larger and finer than others, and for many years persons have been trying to cultivate and improve upon the best specimens of field blackberries. Our agricultural friends in Massachusetts—particularly Capt. Lovett, of Beverly—have been among the most enterprising and successful in this direction. The "*Improved High Bush Blackberry*" of Capt. Lovett's has often been noticed with marked favor by the *Massachusetts Horticultural Society*, as being a long, egg-shaped, shining, black, juicy, and

rich fruit, with specimens often an inch and a half long. We have several times imported this variety from New England, but never succeeded in making it grow, so that our attempts to prove it have failed. Neither have we been enabled to learn whether it succeeds in the hands of *ordinary* cultivators. Rumor says, all these improved kinds from Massachusetts have a tendency to deteriorate under continued cultivation. We hope this is not the case, but we have tried in vain to ascertain the facts.

The White Blackberry grows wild in Western New York, but is usually small, and of no great value, save as a novelty.

The blackberry rejoices in a moist, loamy soil, moderately rich, and will bear well a little shade, or a northern exposure. It grows very readily after being once established; but we have always found it one of the most difficult plants to make live in transplanting, and we hear the same difficulty complained of from all quarters. It should therefore be well taken up, with great care, preserving as many of the fibrous roots as possible, and set out in a favorable time, and in the best manner, mulching and watering the plants well the first season.

There is only one variety that we know enough about to strongly recommend for cultivation, and that is the "NEW ROCHELLE, or LAWTON BLACKBERRY."

The public are much indebted to Mr. William Lawton, an old resident of New Rochelle, for its active introduction and dissemination, during the last two or three years. In the last Patent Office Report, just out, we find the following statement from him in regard to it. He says: "For several years a new variety has been cultivated in small quantities in this town, which, for the want of a better name, I beg leave to introduce into notice as the '*New Rochelle* Blackberry.' I have not been able to ascertain who first discovered the plant, and brought it into garden culture, but am informed that it was found on the road-side, and from thence introduced into the neighboring gardens." He further adds: "The '*New Rochelle* Blackberry' sends up annually large and vigorous upright shoots, with lateral branches, all of which, under common cultivation, will be crowded with fine fruit, a portion of them ripening daily, in moist seasons, for six weeks. They are perfectly hardy, always thrifty and productive, and I have not found them liable to blight, or injury by insects. Except that they are perfectly hardy, and need no protection in winter, the cultivation may be the same as the Antwerp raspberry; but to produce berries of the largest size, they should have a heavy, damp soil, and shade."

The *American Agriculturist* of the 2d August last, says, when speaking of Messrs. Seymour's plantation

of this same variety of fruit, in Norwalk, Ct.: "They have fruited this variety for seven years, and we think its value may now be considered so far settled, as to allow an expression of opinion upon its merits. It is much larger, more uniform in size, and more prolific than other varieties; it has less seeds, a good flavor, and is a good keeper. It is also thought to be better adapted to poor soils. On this point we cannot speak as positively from our own observation. One thing seems certain, that it has not depreciated by cultivation during eight or ten years.

"As to size, it will surprise most persons who see it for the first time. At Norwalk we saw several stalks bearing five to eight quarts each. We tried some that had been gathered over forty hours, and found the flavor quite good. A quart of them numbered 111 berries. We picked a quart from vines which had received no manure for two years past, and from which the largest had just been selected for the New Haven Horticultural Society, and found that 72 of them filled a quart measure.

"The vines grow quite large, many of them over an inch in diameter, and the fruit hangs in thick clusters, in size more like large plums than like the ordinary blackberry. The flavor is not apparently diminished by its large size, and the few seeds is not its least recommendation. We think this berry a valuable

acquisition to our domestic fruits, and worthy of a place in every garden.

"In transplanting it, Messrs. Seymour & Co. recommend selecting plants from two to three feet high, and to set them out about the first of November or the middle of April, in this latitude. They may be put out on almost any ordinary soil, at a distance of four to six feet. When setting out, it is desirable to cut off the vine at from four to six inches from the ground. For field culture, they recommend preparing the ground by ploughing in an ordinary coating of barn-yard manure. Two or three experiments with guano, dug in around the hill, have been quite successful."

The only plants in bearing of this variety we have ever seen, are those cultivated by Mr. Lawton in his garden; and our observation of them tended to confirm all that we have quoted from him and from the *Agriculturist.* For vigorous plants, size, flavor, and productiveness of fruit, they altogether surpassed our expectations, and we hope they will soon find their way into every good garden.

Some growers near this city have readily contracted their whole crop of this fruit in New York this season, for 37½ cents per quart.

We have given a large space to this variety, because it is new, and, we believe, well worthy of extended cultivation by the public.

THE CURRANT.

THIS is one of the most valuable of all our small fruits. It can be used to such advantage in a variety of ways, whether in a green or ripe state, and it is so easily grown, that it is indispensable in every small garden.

It is a native of Great Britain, and therefore perfectly hardy. In a green state it is used in pies, tarts, &c., stewed like gooseberries. When ripe, it is much used as a table fruit, with plenty of sugar; but it is almost universally used in a jelly that is both delicious and wholesome. It also makes an excellent wine, at a cost of not more than two or three shillings a gallon. The Black Currant is chiefly used in a jam or jelly. Currants ripen in midsummer, and if protected from the sun, will remain on the bushes until October.

This fruit is very easily cultivated, and it will grow and bear in almost any fair soil or treatment. The usual way is to allow the suckers to spring up around the original plant, until it has become a matted clump of bushes, but this is a bad practice every way. The

suckers uniformly produce poor and small fruit, and should never be permitted to grow.

The best way of propagating the currant, is to cut off in the early spring, before the buds swell, the growth of the last year, close to the old wood; make the cuttings one foot long; remove all the eyes except some three or four at the top of the cutting, to prevent suckers; then place it compactly in good sandy soil to half its depth, or six inches, and by good care in one year it will be sufficiently established for transplanting. In new, rare varieties, it can be more rapidly increased by layering, where the first branches have been allowed to grow near the surface of the earth. It should always be cultivated in the form of small bush trees, and by a skilful hand can be easily made to assume a handsome pyramidal or espalier form. All superfluous wood should be carefully pruned out every winter, and the plant invigorated with rich manure in the spring. The currant and gooseberry can hardly be over-fed. Each bush should be renewed every six or eight years, as young vigorous plants of most fruits produce the largest and best specimens. It will bear very well partially shaded by trees or shrubbery.

VARIETIES.

BLACK NAPLES,

The largest and best of all Black Currants, of excellent flavor, and bears large clusters of fruit, often five-eighths of an inch in diameter. It is also productive. The Black English is quite inferior.

WHITE AND RED DUTCH,

A little larger, more productive, and milder flavor than the Common Currant; and the Red and White Grape are hardly distinct enough to give them an important preference. The white are of mildest flavor. These are excellent varieties to cultivate.

CHERRY CURRANT,

The largest of all red currants; quite acid; short clusters; moderate bearer; color, dark-red; strong grower; thick, dark-green foliage; new, from Italy.

MAY VICTORIA,

Or Houghton Castle; large and very long bunches; late, and rather acid; moderate bearer; plant vigorous.

KNIGHT'S SWEET RED,

Chiefly valuable for its mild pleasant flavor, similar in quality to the White Dutch, and productive.

LARGEST WHITE PROVENCE,

The largest White Currant, often full five-eighths of an inch in diameter; short bunches, and quite acid; a good bearer; quite attractive; new, from France. We are pleased with it in our own garden.

THE GOOSEBERRY.

No fruit is easier of propagation than the gooseberry, and it should find its place in every garden.

It should be protected from suckers, like the currant, and like that, it loves a deep, rich, moist soil: it can scarcely be too much enriched. The north side of an open fence or hedge will do well for it, but it should not be placed under the shade of trees; open ground is far better. It should be so carefully and thoroughly pruned as to admit the air and light freely, and it is well to train it up into little upright bushes or small trees.

The English varieties are much subject to mildew in this country. Mr. William Newcomb, of Pittstown, N. Y., a very successful horticulturist, wrote me that he always in the spring placed three inches of hog-manure under every bush, and raised the best English varieties in that way in the greatest abundance and perfection, without its being affected in the least by the mildew.

Mr. D. Haines, near Elizabethtown, N. J., informs

me that he cultivates Woodward's Whitesmith most successfully by removing a few inches of the surface-earth, every spring, under every bush, and filling the space with salt hay, which he covers with the earth; thus affording protection from drought, and perfectly exempting the fruit from mildew. Others find a remedy in sprinkling ashes on the bushes when the dew is on. The ashes also benefit the plant. Any good mulch of tan-bark, sawdust, &c., of three inches deep, would answer nearly the same purpose as salt hay. Sprinkling the bushes in the spring freely with soap-suds also has a good effect on their growth, and often protects them from mildew. The bushes should be transplanted in April or late in October or November, and pruned back and set at a distance of about three feet, like the currant. If any large fruit is wanted, the fruit must be thinned out. The *Encyclopædia of Gardening* says of the famous growers in Lancashire, England, who produce the largest fruit in the world: "To effect this increased size, every stimulant is applied that their ingenuity can suggest; they not only annually manure the soil richly, but also surround the plants with trenches of manure for the extremities of the roots to strike into, and form around the stem of each plant a basin, to be mulched, or manured, or watered, as may be necessary.

"They also practise what they term *suckling* their

prize fruit. By preparing a very rich soil, and by watering, and by the use of liquid manure, shading and thinning, the large fruit of the prize cultivator is produced. Not content with watering at root and over the top, the Lancashire connoisseur, when he is growing for exhibition, places a small saucer of water under each gooseberry, only three or four of which he leaves on a tree; this he technically calls suckling."

The gooseberry tree needs to be kept constantly in a vigorous condition, and then it will produce an abundance of good fruit.

It should be propagated from cuttings of the wood of the present year, prepared and set out early in September, and transplanted in October of next year, or very *early* in the following spring; and should be pruned in June and November, and renewed every five or six years.

The fruit is well adapted for pies and tarts when in a green state, and the best varieties when well grown and ripe are very excellent and acceptable for the table or hand. Says Mr. Downing: "As a luxury for the poor, Mr. Loudon considers this the most valuable of all fruits, since it can be grown in less space, in more unfavorable circumstances, and brought sooner into bearing than any other."

Books and catalogues are filled with the longest lists

of names of different kinds of the gooseberry, but after experimenting with many of them for years, and observing them under various circumstances, we are prepared to narrow our list down to a very few kinds,—as we have studied to do with the other fruits,—which we think combine the size, flavor, and productiveness of *all*, at least for ordinary cultivation.

CROMPTON'S SHEBA QUEEN.

This is the largest and best flavored of all the English varieties we have seen. Our attention was attracted to it some years since by the favorable reports and first premium of the Albany Horticultural Society, through the accurate chairman of its Fruit Committee, Dr. Herman L. Wendell, who says of it, "This is decidedly the richest and most delicious, as well as one of the most beautiful berries we have. It is larger in size than any of the others; obovate form; white, clear color; very pleasant, rich, and luscious in its flavor, and erect in its growth. It requires a deep, rich, and well-drained, as well as cool soil." In other locations it sustains the same high character there given of it, and we have found it decidedly the best in our own garden.

WOODWARD'S WHITESMITH.

This is another large, beautiful, and excellent Eng-

lish variety—very productive, and is usually over one inch in length. The color is white, and tree of erect habit.

Roaring Lion and *Crown Bob* are also large, good varieties of red color.

HOUGHTON'S SEEDLING.

An American seedling of very vigorous habit, great bearer, and said never to mildew. It is of pale red color, rather under medium size; of good, rich flavor, and well worthy of cultivation.

We have also cultivated for some years an American seedling variety resembling Houghton's Seedling in every respect, except being of larger size, and greenish-white color. It is very valuable.

THE GRAPE.

It has often been asserted—we know not with how much of truth—that in the vine districts of France, lung diseases are unknown; but this we do know, that the free use of well-grown and well-ripened grapes would be decidedly beneficial to the general health. The cultivation of this excellent fruit embraces a very wide range. In the first place, there is the very nice process of raising hot-house grapes: next, the cold vinery, which is simple and easy to be practised; next, vineyard cultivation: but it will not be expected of us, in this brief notice, to more than refer to the common mode of out-door garden culture. The grape is easily and cheaply raised, but good cultivation is altogether the best economy. It is easily propagated from cuttings. We have found it the best way to prune off our cuttings early in February, two feet in length, bury them in a bundle four or six inches deep in the ground immediately, and for this purpose we choose the warmest weather in the month.

Let them be in the ground till the warm weather in

the fore part of May: we then take them up and plant them in a sloping position, in a somewhat shaded situation, leaving the upper bud a few inches above ground. In this way almost every cutting will surely grow, and after a year or two, should be carefully transplanted into the vine border.

The preparation of this vine border is an important process in grape culture in private gardens. It should be made from four to six feet wide, and two to three feet deep, and be composed of a liberal mixture of limestone, or old plaster or mortar, bones, leather-parings, hair, ashes, and strong, well-rotted manure, well mixed with the soil.

A calcareous soil or gravelly loam is best for the grape, and should be well drained and warm. It is somewhat difficult in wet clay lands to raise good grapes, unless the vine border is carefully prepared. Soap-suds and wash from the house is favorable for the grape, and we have known some plants succeed well that were placed immediately under the spout of the sink. For vineyard culture, the nearer the process approximates to the one described above by trenching and enriching, the better.

Every plant should be thoroughly pruned down to two or three leading shoots; and after these cover the trellis or stakes as extensively as you wish, then the rule in pruning is, every year from December to first

of February, fearlessly to cut back all of the last year's growth, so far as to leave only two eyes. It is also desirable, after the grapes are beginning to fill in June, to pinch back the terminal bud of every branch, and thus check its growth, and throw back its sap, to ripen the fruit and mature the wood. By pinching back, we mean, to pinch off with the thumb-nail and fore-finger the end of every bearing branch, and we then cut out all the superfluous little shoots and suckers.

The vine is composed the greater part of potash, lime, and carbonic acid, and therefore a frequent application of ashes, lime, and soap-suds is beneficial. It has been asserted that tartaric acid is a valuable specific for the fruit, but of this we have no personal knowledge.

The grape should always be grown in the warmest and most sheltered situation, so that the fruit may ripen well before frost. The south side of a house, or southern slope of a side-hill, should be chosen.

In some places the mildew is troublesome to the grape, but sulphur sprinkled liberally on its first appearance will usually check it at once. There is also a kind of snail slug which often destroys the leaves in a few weeks. These can easily be destroyed by showering the vines two or three times with strong soap-suds from the wash.

Our nurserymen have many kinds of the grape on

their lists for open-air cultivation, but we are not quite sure that the *Isabella* and *Catawba* do not comprise substantially the good qualities of all. The only complaint against them seems to be, they will not in all situations and all seasons at the North ripen before the frost.

The *Clinton* is two weeks earlier than the *Isabella*, but it is not near so large or good.

The *Catawba* is still later than the *Isabella*, and requires a warm soil and sheltered location to perfect its fruit, and then it is rich and truly delicious.

We are in great want of a new seedling grape equal or superior to the *Isabella* and *Catawba*, and decidedly two or three weeks earlier. We often have such announced, but they do not always prove satisfactory.

Appendix.

APPENDIX.

APPENDIX A.

THE STRAWBERRY AND ITS CULTURE.

BY CHARLES A. PEABODY, OF COLUMBUS, GEO.

THAT eminent horticulturists are liable to be mistaken in their views of culture, as well as of the origin and history of plants, as any other class of men, we have ample proof in the conflicting opinions of the nature and culture of the strawberry. Downing says: "The strawberry is the most delicious and most wholesome of all berries, and the most universally cultivated in all gardens of a northern climate." Again he says: "The strawberry properly belongs to cold climates, and though well known, is of comparatively little value in the south of Europe." With this high authority, the horticulturists of the South never dreamed of cultivating the strawberry to any extent, although the woods and fields were covered with the wild fruit. It was a knowledge of the fact that the wild strawberry grew all around me, that induced me to try strawberry culture at the South. I do not believe there is a plant in nature that so easily adapts itself to soil, situation, and climate, as the strawberry. In many of its homes, however, it produces little or no fruit, spreading itself rapidly by its runners.

Now, as there are two ways of propagating the strawberry, one by its seeds and the other by its runners, the question is, which method do we prefer? If we were going to introduce the strawberry-leaf for a tea, for which it makes a good substitute, common sense would dictate to us to cultivate for runners, and stop the fruiting, or perfecting the seed, as the fruit is nothing more than the receptacle for the seed; and if, on the other hand, we wish seeds or fruit, we must cultivate for that purpose alone, and stop the runners.

Intelligent experimental cultivators have long since discovered that plants have a specific food for their wood, leaves, and fruit. Physiologists know full well that it takes different substances to form the bones, flesh, and muscles of animals; and, profiting by these hints in nature, I would feed for fruit instead of vines. Before planting out the vines, the cultivator should understand the sexual character of the plants, as upon a proper knowledge of this fact will depend his whole success in culture. That plants are staminate and pistillate, or male and female, no intelligent cultivator will now presume to deny. But in the strawberry there are three varieties—the perfect male, the perfect female, and the hermaphrodite. The perfect pistillate, or female, is the most productive of the three, when impregnated by one of the other kinds. The perfect staminate, or male, produces no fruit, making a great show of flowers, and sending out innumerable runners which will soon take possession of the whole bed. The hermaphrodite produces fruit, but not in so great abundance as the pistillate, and answers the purpose of an impregnator equally as well as the purely staminate.

These three varieties of flowers are represented by figs. 1, 2, and 3, page 37.

Fig. 1 is from an hermaphrodite plant, which blooms and impregnates itself. The stamens, marked *a*, are full of a fine pollen, or yellow powder, which falling on the end of the unopened calyx of the buds, below the flower, or around it, on the pistillate plants, is carried by an unseen agency direct to the pistil, impregnating and setting the fruit. This variety is the Early Scarlet, a continuous bloomer with my culture, and the best impregnator for the ever-bearing Hovey Seedling I have ever met.

Fig. 2 is the sterile staminate, or male plant, never producing fruit under any circumstances whatever. It will be observed the flower is larger and more showy than the others. It deceives many an inexperienced cultivator with its false promises of fruit. The flower of the pure male may be easily known by its large anthers and stamens, as marked *a*, *b*, in Fig. 2.

Fig. 3 is the pistillate or female blossom. It will be observed that there are no stamens around the pistil, as *b*, but nearly every bud will produce a berry if impregnated by one of the staminate or hermaphrodite plants. Of this variety is the Hovey Seedling, which, as far as my experience goes, is the best strawberry ever yet cultivated, North or South. . . .

Before proceeding to the method of culture, I will give my views of the time of impregnation, being fully satisfied that the generally received opinion that the strawberry is impregnated after the petals expand, is entirely erroneous. I have long since observed that the first strawberry blossoms never produce fruit. The

staminate varieties, or rather the hermaphrodite, open from two to ten blossoms, which must shed their pollen on the ends of the unopened calyx of the young buds below, or fall on the ends of the unopened pistillate buds, and immediately cause impregnation.

The pollen of flowers is one of the most volatile substances in nature. That of the strawberry, viewed through a microscope, is a hairy substance, which, upon ripening, bursts and floats off on the least breath of air. The point of the unopened calyx contains a glutinous matter, which catches and holds this hairy pollen, and the work of impregnation is done; and when the calyx opens, and the petals expand, the young strawberry may be seen perfectly formed. From this will be seen the importance of the pistillate and staminate varieties blooming together. I would always prefer the pistillate plant for a large fruit crop; for, if properly impregnated, nearly every bud will be a berry. Thousands of blossoms will be found in the beds to correspond with figures 2 and 3. Fig. 2, let it be recollected, is a staminate or male flower, and fig. 3 an impregnated pistillate or female flower, neither of which, by itself, can ever make fruit.

Having now explained the sexual character of the plant, and the time of impregnation, I will proceed to the culture. As I have before stated, were I to cultivate for vines alone, I would stimulate the plants by the most active fertilizers; but if fruit be the object, the luxuriance of the vine must be curtailed, and that food only, known as the special food of the fruit, given.

Now, as to soils. There are as many opinions as cultivators, from the fact that the strawberry adapts itself

to almost any kind of soil. But the soil which I have found to suit them best, is a sandy loam. I would prefer new land for the beds, with a stream of water running through them, as water, being an indispensable requisite, should be in the vicinity.

It is now well known throughout the Southern States that for many years I have cultivated the strawberry extensively, and have had from my beds a constant succession of fruit six months in the year, and frequently have it ten. While I am now writing, (December 24,) one of my beds, of an acre, is loaded with ripe fruit, specimens of which I have sent to New Orleans, Montgomery, Savannah, Charleston, Mobile, and New York. This bed has scarcely produced a runner the past season. The causes of this will be found in my method of culture. I have said that I prefer a sandy soil and new land. My grounds are on what are called "piney woodlands," hill and valley, with never-failing streams meandering through them. I have taken the grounds bordering on the streams, ploughed them deep, and laid them off in rows, two feet apart, and planted as indicated in the annexed diagram:—

o	o	o	o	o	o	o	o	Early Scarlet.
*	*	*	*	*	*	*	*	Hovey's.
*	*	*	*	*	*	*	*	Hovey's.
*	*	*	*	*	*	*	*	Hovey's.
*	*	*	*	*	*	*	*	Hovey's.
*	*	*	*	*	*	*	*	Hovey's.
*	*	*	*	*	*	*	*	Hovey's.
*	*	*	*	*	*	*	*	Hovey's.
o	o	o	o	o	o	o	o	Early Scarlet.

I plant the pistillate for fruit, and the hermaphrodite for impregnators; and the only two which I have found to bloom and fruit together the whole season are the Hovey Seedling and Large Early Scarlet. Ross Phœnix, Burr's New Pine, and a seedling of my own, not yet fully tested, I have also caused to bear continuously. I plant seven rows of the pistillate, and one row of the hermaphrodite, two feet apart each way. The first season I let the runners fill the ground; in the fall, go through the grounds with hoes, thinning out to 8 or 10 inches, leaving the vines to decay just where they are cut up. I then cover the whole bed with partially decomposed leaves from the woods or swamps. The winter rains beat down the leaves, the fruit-germ finds its way through them, and the first mild weather of spring, the blossoms appear.

I have before spoken of the volatile nature of the pollen. In very dry weather the particles float off on the winds, and much is lost to the buds below; hence the importance of watering freely when in bloom. Free applications of water will set the whole bed with fruit, which will require continuous watering to swell and ripen it. A strawberry bed may be moist, the plants in fine condition, and yet one good shower will make a difference of one-third in the quantity of fruit picked the day after. Consequently, in dry seasons, artificial watering must be resorted to, and no labor will pay better.

I never use animal manure of any kind—nothing but the leaf-mould, and an occasional sprinkling of wood-ashes. The leaf-mould keeps the ground cool and moist, as well as the fruit clean, and does not sti-

mulate the vines to runners. The potash and acids contained in it are just what the fruit wants. Should the vines be disposed to spread, keep the runners down by constant pinching off, and clear out the grass and weeds with the hoe. A few years of this culture will check their disposition to run, and encourage them to fruit. The bed, once thus formed and cultivated, will, to my certain knowledge, continue productive twelve years, and, I have reason to believe, as much longer as the culture is continued. Should the vines have taken possession of the ground, in spite of the efforts to keep the runners down, we go through in the fall with the hoe, thinning out the plants to 10 or 12 inches, leaving every cut-up vine to decay on the ground where it grew; we then cover with the decaying leaves. When the plants begin to bloom in the spring, a top-dressing of wood-ashes will be found beneficial. I have tried strawberry culture with the plough, which will make a greater quantity of vines, but will give only one crop of fruit. It is generally remarked that the wild strawberry is finer flavored than the cultivated; but with this treatment the latter retains all the original flavor.

It has been recommended by some cultivators to irrigate the strawberry grounds by letting water on the vines; but the strawberry, cultivated after the manner described, can bear as great a drought as any other plant. It is not the vines and leaves that want the water, but the flowers and fruit; and the water must come in the form of rain, through the clouds, from an engine, or a common watering-pot.

I have noticed quite a contest going on among hor-

ticulturists as to the possibility of strawberries changing their sexual character by cultivation. Without taking part in the controversy, I must state that I would as soon think of high feed turning a cow to a bull, as to change the pistillate character of Hovey's Seedling by any method of cultivation. I have cultivated the strawberry under every aspect; with high manuring, and without manure; in new lands, and on old lands; have had the vines stand from 12 to 18 inches high, and in meek submission to hug the ground; yet I have never found the least change in the blossom. A perfect pistillate or staminate flower, first blooming so from seed, will never bloom any other way. Cultivators are often deceived about their plants, from the fact that they frequently find varieties in the beds which they did not plant; but these spring from seed. The strawberry springs from seed with astonishing rapidity. Since my beds were started, the whole country around me is covered with strawberry-plants from the seed dropped by birds. These I find running into all varieties—pistillate, staminate, and hermaphrodite—most of them worthless, but some with good fruit.

The proper time for transplanting the strawberry at the South, is as soon in the fall as the weather is cool and moist enough. Here, this may be continued until spring. Plants are easily transported great distances in the winter. I have sent them 2,000 miles with safety. It will be observed by the diagram, that I plant the staminate every eighth row. Some cultivators mix in the rows; but I prefer to keep them separate and distinct, as they are more easily distinguished, and kept better in their places.

Now, if the cultivator would know the secret of my having strawberries six, eight, and even ten months in the year, in the hot climate of Georgia and Alabama, it is this: proper location, vegetable manures, shade to the ground, without exhaustion, and water to the bloom and fruit.

One reason why so many fail in garden culture with the strawberry is, that the beds are surrounded by trees and shrubbery, which may produce one crop of fruit in the spring, but rarely more than that, unless it should prove a very wet season. The strawberry-bed, whether in the garden or the field, should have no tree, plant, or shrub near enough to it to take the moisture from the earth. The plants require all the moisture from the atmosphere and the earth around them. Whether the strawberry was originally found in cold climates, or not, I find they readily adapt themselves to any climate, and very soon become indigenous. I doubt whether there is a State in this Union that cannot produce the strawberry months, instead of weeks, in the year, with proper culture. And when we take into consideration the ease and simplicity of its culture, its continued bearing and productiveness, its exemption from all insect depredations, its delicious flavor and healthy influence upon the system, it ranks first in importance among the fruits of the earth.

COLUMBUS, Ga., August 22, 1854.

MR. R. G. PARDEE:

DEAR SIR:—I find the strawberry running into a

great many new varieties through its seeds, but I have never yet found the character of a plant to change by culture—a pistillate will be pistillate still, no matter how cultivated. As to varieties, for general culture, I do not believe there is any thing to compare with Hovey's Seedling, when impregnated by a constant bloomer. I have a new seedling, from the Ross Phœnix, and a wild strawberry, of Alabama, that, for size, beauty, and lusciousness, surpasses Hovey's as much as Hovey's does the Early Scarlet: shall not be able to test its producing qualities until 1855. The past season has developed in a wonderful degree the propriety of the principles of my culture. For near two months it has scarcely rained; gardens and flower-yards have been entirely destroyed, and the staple crops have suffered materially. My strawberry plants have made no runners, but look fresh and green—the beds being in the best possible order for next spring's bearing. Had my beds been highly manured, and cultivated in the common way, I should not have had a living plant left. There is a vast difference in the nature and habits of plants to withstand heat. Richard Peters, Esq., of Atlanta, Ga., last year sent me some hundreds of a staminate strawberry, supposed to be a native of Georgia, which he thought would answer as a better impregnator to the Hoveys than the Early Scarlet. I planted them among the Hoveys; they grew and bore finely this spring, but the drought has killed every plant, whilst the Hoveys are unscathed. Should the fall prove wet and mild, my vines, from not having made runners, will be in full fruit. In the forthcoming Patent Office Report, I have given my

views upon the time at which the impregnation takes place; as that is fully explained by engravings, I refer your readers to that Report. The more experience I have in strawberry culture at the South, the stronger I am convinced you may prolong their bearing season at the North until frost. I tried an experiment this season, which may be a warning to southern cultivators. On a portion of one of my beds, I placed cotton seed around the plants, just as we use leaves, straw, &c.; the result has been, that, where the cotton seed was, every plant has burned up. This more strongly than ever satisfies me that leaves and vegetable mould are the only safe manures for the strawberry. These, with plenty of water, judiciously applied, will give fruit months instead of weeks.

Truly yours,

CHAS. A. PEABODY.

APPENDIX B.

WE give the following extracts from letters from Henry Lawrence, Esq., of New Orleans, La. They commence under date of 20th August, 1851, as follows:

It is perfectly correct, as stated in the "*Picayune*," that I have succeeded in raising strawberries which yield from Christmas to the 15th of July, a period of nearly seven months. Their production is purely accidental; by trying experiments for several years,

I have attained the object desired, viz: by keeping them in continual bearing without exhausting the plant. I have named them the "Crescent Seedling." They are a cross between Myatt's British Queen and Keen's Seedling. The fruit is very large, frequently measuring five and a half inches in circumference, conical, and the color a dark red, and highly flavored. *I cultivate them in hills*, that is to say, the plants set out thirty inches each way; in the growing season, manure the avenues and keep the soil loose. My plants are so luxuriant in their foliage, that neither grass nor weeds appear. In this way my beds yield from six to seven months in the year in the *open air*. I have half an acre under cultivation at this time.

In a letter of the 9th November, he says:

"You will at once remark how different the *leaf* and its *thickness* is to any plant of its species you have heretofore seen. So remarkably prolific are they with me, that for *six months* the *same plant* is in blossom, *unripe* and *ripe* fruit together, so that at the expiration of the *fruiting season!!* they are completely worn out, but not until they make three or four runners each, with which I plant *anew* each succeeding year. All the *old stools die out.* How different — is it not? — to other varieties of the strawberry.

I neither cut off the blossoms nor any part of them to increase their bearing: It is one continued crop from the *first jump.* They are all now coming into *blossom*, and will so continue until July or August. I freely admit that I consider their extraordinary bearing qualities purely accidental."

On the 9th April, 1852, he says:

"I have had strawberries on my table since the 4th January last, and at the present moment I have them in the greatest abundance, the average weight being *one ounce*, and about three inches in circumference: and this will continue without intermission until about the middle of August, when they will stop and throw out runners.

Under date of 7th May, 1852, he writes:

"My Crescent Seedlings are still wonderfully prolific. I counted with a friend, a few days since, on numerous plants, thirty-three, thirty-five, thirty-six and thirty-seven berries. My ground is now *red* with *fruit*, not *green* with *leaves*."

On the fourth of August, in another letter, Mr. Lawrence says:

"I am extremely gratified to learn that you have at length succeeded in preserving six or eight of my seedlings. If, as you say, they are striking runners freely, you have nothing to fear: you will soon have enough to stock your garden, and besides, ample for sale. Should the weather prove dry, give them plenty of water in the evening, and as soon as the fruit sets, in a dry time, give them likewise plenty of water; in a word, I presume you are fully aware, as a large grower of this delicious fruit, that no fruit supports as much moisture as the strawberry. My manner of cultivating the 'Crescent Seedling' is very simple. I give it all it requires to perfect its fruit, and check the luxuriance of the vine, by reducing our rich allu-

vial-soil by two-thirds; that is, I add two-thirds of river sand to one of ours: this mode, likewise, enables the plant to withstand the excessively hot months of June July, and August; in fact, the soil best adapted to seedlings is a sandy loam; and I also know, by experience, that the less manure of any kind is used, the better it is for the plant. In planting, I never mulch. I place each plant ten inches apart, and eighteen inches to two feet between the rows. In dry weather I water copiously two or three times, in as many consecutive days, and then let them take care of themselves for a while; when the ground is moist from previous rains during the planting season, I never water. I transplant *every year* into new beds, as new soil is preferable to old; besides, as I before noticed in a former letter, the old stools die out completely by over-production of fruit and incessant bearing. *I gathered the last fruit of the season* on the 25th July, which is precisely seven months to a day since they commenced bearing, viz: on the 25th December, 1851. This experiment of mine, accidental as it is, I consider as *one* among the wondrous productions of nature: a similar accident may not occur again for many years. I am, and always was, impressed with the belief that I have been aided by our climate in producing this truly extraordinary strawberry, and although I give myself but little credit, I feel proud that it should be so widely known and so favorably noticed throughout the Union. I disliked my name going forth to the world, but in spite of myself I could not prevent it. My only aim is for pleasure and amusement in this delightful climate of ours."

And on the 11th November, 1852, he replies to my inquiries as follows:

"1st. The runners *bear* the same season they strike.

"2d. It is the same *identical* plant *bears fruit* so fine and large in January, and which continues to bear, until July following, a *constant crop*. Weak plants are shy bearers at all times. I plant none but the strongest plants, (runners;) the weaker ones I neither use nor dispose of until they are fit for setting out."

In 1853, he again writes, "that they never were doing so well in all the South below Charleston, S. C."

There will be found many valuable suggestions in this correspondence with Mr. Lawrence, which will tend to throw light on the great question.

We are inclined to think that the superior location of Mr. Lawrence—the low bottom lands near New Orleans—and his superior cultivation, have more to do with the character of the Crescent Seedling than he supposes. However, it is a good plant to experiment with, and they are now easily obtained in the State of New York, or of B. M. Watson, Plymouth, Massachusetts.

APPENDIX C.

(From Downing's Horticulturist.)

TWO EXPERIMENTS MADE TO TEST MR. LONGWORTH'S STRAWBERRY THEORY.

TAKING Hovey's Seedling as a subject, I procured a bell-glass, and placed it over an entire plant which had

not bloomed. The flowers expanded well under the glass, but did not produce one berry. The plant was frequently agitated to put the pollen in motion, if there was any.

I also introduced under a glass some blossom buds before they had blown. These, as they successively expanded, showed no signs of swelling. I impregnated, at different times, two of the blossoms by hand, applying the pollen from another plant with a camel's hair pencil. These two set their fruit perfectly. The pistils of the other blossoms soon turned to a dark color. These experiments were made at the north side of a picket fence, where the plants were screened from the full effects of the sun; otherwise the heat under the glasses would have been too great.

These experiments prove, to my mind, very conclusively, that Hovey's Seedling will not bear any fruit unless impregnated by some staminate variety. And the same may be said of other varieties in which the stamens are *obsolete.* I have had some plants of the Hudson Bay for three years, in a position where they cannot very easily be impregnated by other kinds, during which time they have notborne one berry, while other plants of the same variety, exposed, have been productive. A difference in the formation of the flowers on different plants is not confined to cultivated kinds, but may be seen in those growing wild in the fields, the *pistillate* plants of which I have often examined with a magnifying-glass, to see if I could discover any pollen, but have never been able to find it; I am forced, therefore, to believe that *pistillate* plants, both wild and cultivated, are absolutely devo

len, and cannot, therefore, produce any fruit except when impregnated by others.

I am also convinced, from observation and theory, that one kind will never change to the other by offsets, the runner bearing the same relation to the plant producing it as a tree grown from a bud does to the tree from which it was taken. It may, then, be asked, How does it happen that there are *pistillate* and *staminate* plants of the same variety? *I answer, It is not the fact,* unless they have sprung from seed, or the plants have been taken from the fields in a wild state.

That *pistillate* plants are surer and better bearers than *staminate* plants, is, I think, generally true, (provided, of course, that they are impregnated.) And it would seem reasonable to infer that when but one of the sexual organs is complete, the other will have more strength. Plants, therefore, that are perfect in both organs, require a higher state of cultivation. There is, however, a wide difference in the productiveness of different kinds that are perfect in both organs, some being much more liable to *blast* than others.

G. W. HUNTSMAN.

***Flushing, L. I., July* 14, 1846.**

APPENDIX D.

CINCINNATI, Ohio, Aug. 14th, 1854.

MR. R. G. PARDEE:

DEAR SIR:—By this mail I send you a grape pamphlet, containing an article written by me on

the strawberry. I will, in a day or two, send you a Report of our Strawberry Committee, written by Dr. Warder, on Mr. Meehan's doctrine of changing a pistillate to a staminate plant. Mr. Meehan finds plants that he took from what was called a bed of Hovey's Seedling, and had nearly all proved staminates or hermaphrodites. Dr. Warder and Mr. Heath, of our city, saw his plants, and found about one Hovey to the hundred. The Hovey is so strongly marked, that our children can distinguish the plant from all others. Mr. Meehan never heard of a pistillate plant till he came to America. I sent some of our seedlings to the President of the London Horticultural Society last winter, and among them pistillates. He replied that he was not aware that there were plants that would not bear fruit without impregnation, and suggested that the failure to bear, he presumed, was from frost. He promised to investigate the subject. Mr. Huntsman, of Flushing, Long Island, is a botanist, and has given great attention to the cultivation and sexes of the plant. From the stem and leaf he can designate some fifty varieties that he has had in cultivation. I would recommend you to get his views. It is singular that after public attention has been brought to the question for twenty years or more, even botanists and horticultural editors deny the doctrine. If generally understood, the discovery of the ignorant market-gardener is worth millions of dollars. After I had made the discovery, from a chance observation of a son of Mr. Abergust, I was at the gardens of persons near the city of Philadelphia, where Mr. Abergust resided, prior to his removal to Cin-

cinnati, and named the matter to them. "Oh," said they, "we now understand it. He lived near us, and from the same space of ground raised five times as much fruit as we could, and larger. Every fall he thinned out his plants, and threw them in the road; we gathered them, and planted them in our gardens, and they never bore a single fruit." He threw out staminates only, and to deceive them. The son of Mr. Abergust was in my garden a few days before my plants were in blossom, and observed, "Your strawberries bear a bad crop." I observed, such was the fact. He added, "They are all males." I replied, "That is all nonsense. The strawberry is a plant that bears flowers perfect in both organs." "I am no botanist," said he, "but I know most of yours will bear no fruit." I requested him to point out any that would. He selected two. I inquired, "Can you then see the difference?" "Not now," said he; "I could if they were in blossom." I found him disposed to give no further information. I marked the plants, and when in blossom, could distinguish them at a distance of several feet. There was not one of these to the hundred. Before they were out of blossom, I cast them all out, as I supposed; they spread, and the next season I had a full crop. But finding a few barren plants before they were out of blossom, I dug them all up, and the next season had not a single berry. I then understood the subject, and made it known. In that day we had no hermaphrodite plants.

Yours truly,

N. LONGWORTH.

THE STRAWBERRY.

EXTRACT FROM THE REPORT OF NICHOLAS LONGWORTH TO THE CINCINNATI HORTICULTURAL SOCIETY.

I REGRET that the committee on the character of the strawberry plant have not yet been able to make up a unanimous report. It arises from a failure of the crop with some members of the committee, and from a conviction with our European gardeners, that all varieties were perfect in both organs, in Europe; and they are slow to believe the contrary. This, I am positive, is not the fact in England. In some soils and some climates, and in favorable seasons, such staminate plants as are partially perfect in the female organs yield a larger crop than usual; but can never be made to bear a full crop. But in raising from seed, fully one half will in general be staminate plants, and not one in fifty of them bear even a single fruit. Those that do bear, produce many defective berries. I do not believe that any soil, climate, or season, can make the pistillate plant bear singly; and it is the only one worthy of cultivation for a crop. Of this, and of the staminate and pistillate character of the plant in England, we have positive evidence from their great horticulturist, Keen himself. In the year 1809, (if my memory serves me as to date,) Keen discovered that a new seedling of his, planted by itself, did not swell the fruit. On a careful examination of the blossom, it struck him that it might be owing to a defect in the male organs. He then placed some staminate blossoms in a vial of water, and suspended them in the bed. He found the fruit in the vicinity to swell

immediately, and he placed more vials of staminate blossoms in different parts of the bed, and had a fine crop. His letter will be found in the Transactions of the London Horticultural Society for that year. What was true in 1809, will be found still to be true. I have further evidence of the character of the plant in England. Fifteen years since, I imported several varieties of strawberries from London, and among them I had both staminate and pistillate plants, but not one variety in which both organs were perfect in all the blossoms. The staminate varieties bore from one-tenth to one-third of a crop. Under the name of Keen's Seedling, I got a pistillate plant that, impregnated, produces abundantly, and the fruit is large and fine. By themselves, an acre would not produce a perfect berry. It is not what in England is generally known by the name of Keen's Seedling. Mr. Keen raised many varieties. The true Keen is a staminate plant, and is more perfect in both organs than is usual, and produces a partial crop of large fruit. I incline to the belief, that for market, their gardeners cultivate the same seedling of his as the one sent me, and probably the same kind he impregnated by hand. It is truly a valuable kind, and worth twenty of the staminate seedlings. The staminate Keen is cultivated for forcing, and as the object is large fruit, all the blossoms are picked off, except three or four that set first.

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I have this moment received a letter from Col. Carr, an old and experienced horticulturist of Philadelphia. He writes me, "I have conversed with Mr. Hobson and others, who pay great attention to the cultivation of

the strawberry, and they all unite with me in opinion." "The Hudson is the principal sort cultivated for market, and has been for fifty years. It is what we call female or prolific. It never has a neck. A Mr. Abergust, who was my near neighbor, and excelled in strawberries, removed to Cincinnati about thirty years since, and took the true Hudson with him, and the same now cultivated here. All our principal market gardeners now begin perfectly to understand the difference between staminate and pistillate plants, and find the former such strong runners as generally to prefer keeping them in separate beds." Mr. Abergust for many years sold nine-tenths of the strawberries brought to our market, and raised the Hudson only. While I could, from one-fourth of an acre, scarcely raise a bushel, he would raise forty bushels. His fruit was much larger than any other brought to market, and commanded from 25 to 37½ cents per quart. He made a handsome competence from the sale of his fruit. His secret he kept to himself, and had been as much noted for the size of his fruit, and the quantity raised on a given space of ground, in Philadelphia as he was here. A chance observation of a son of his one day, in my garden, saying, "I must raise but little fruit, as all my plants were males," first led my attention to the subject. I soon discovered that there were what he called male and female plants, and communicated the fact to our market gardeners. The result was, strawberries rapidly increased in our market, till as fine as had been raised by Mr. Abergust were sold at from 3 to 10 cents per quart, and he ceased to cultivate them.

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The Early Scarlet is raised to some extent; but four-fifths of all the strawberries sold in our market are the Necked Pine and Hudson; mostly the latter. Mr. Culbertson brings more strawberries to our market than any other person. The greatest quantity he has brought in any *single day* was *four thousand* quarts; and not one of the kinds named in the Farmer and Mechanic among them. All were the Hudson. By properly understanding the true character of the plant, Mr. Culbertson has been able to gather nearly as many quarts in a single day as three Boston cultivators were able to do in a whole season. I saw an editorial article in a recent eastern horticultural paper, speaking in high terms of the Alpine strawberry, as raised by a Col. Stoddert, and its great produce, which yielded him, at 12½ cents per quart, upwards of $1,600 to the acre. It is an indifferent fruit, and never yielded one-fourth the quantity.

Can Hovey's Seedling, or any other large-fruited pistillate strawberry, be impregnated by the Alpine Monthly? It is my impression that they are distinct species, and that it cannot be done. If it can, a cross might be produced that, with the size and flavor of the one, united the ever-bearing character of the other. There is a wild, ever-bearing variety in our State, that would cross with the Scarlet and Pine, and is the only kind I have ever seen worthy of the name of ever-bearing; for the Alpine, after the first crop, rarely produces much fruit through the season. Thirty years since, I met with a solitary strawberry plant on Mount Adams, then in bloom. I removed it to my garden, and the plant not only bloomed freely till frost, but all the runners threw out blossoms at the same

time that they made roots, and bore abundantly till late in the fall. The fruit was small, but of fine flavor. A new hand in the garden, early the next spring, supposed they were weeds, and destroyed them. The old pioneer, Lewis Davis, informed me the same variety grew in Greene county, on the cliffs, and had been frequently seen by him. I trust it may again be discovered, and Ohio have the credit of producing the only ever-bearing strawberry, as well as raspberry. The latter plant, to produce a good crop, during the summer and fall, requires a moist soil. My ground in the city is too rich and dry for it. I have never seen the plant bear as well as in Newark, New Jersey, on a side-hill, where the ground is moist, poor and stony. The plant did not attain half the size it does here; but the fruit was large and abundant till frost.

N. LONGWORTH.

CINCINNATI HORTICULTURAL SOCIETY.

THE Secretary, at the request of the Society, reported a written statement of how he found the strawberry question in Philadelphia; after some animated discussion, it was moved to accept and file the report, and the *finality* was ordered to appear in the minutes of the day.

It has long been argued by some distinguished horticultural writers that certain varieties of the strawberry —for instance, Hovey's Seedling—would produce at one time plants with pistillate, and at another time staminate blossoms. This error has been explained by the fact, that a bed of strawberry plants of any known pistillate variety, after standing three or four

years, and the fruit falling and decaying on the bed, will produce seedling plants, and of course new varieties, and these are as likely to be staminate as pistillate sorts. The following is the

FINALITY ON THE STRAWBERRY.—Wild or cultivated, the strawberry presents, in its varieties, four distinct forms or characters of inflorescence.

1st. Those called *Pistillate*, from the fact that the stamens are abortive, and rarely to be found without a dissection of the flower. These require extrinsic impregnation.

2d. Those called *Staminate*, which are perfectly destitute of even the rudiments of pistils, and are necessarily fruitless.

3d. Those called *Hermaphrodite* or perfect, having both sets of organs, stamens and pistils, apparently well developed. These are not generally good and certain bearers, as we should expect them to be. With few exceptions they bear poorly, owing to some unobserved defect, probably in the pistils. One-tenth of their flowers generally produce perfect and often very large berries.

4th. A rare class—a sort of subdivision of the preceding—has not only hermaphrodite flowers, but also some on the same truss that are of the pistillate character; and sometimes, in the same plant, a truss will be seen on which all the flowers are pistillate.

Now these four divisions are *natural* and *real;* they are also founded upon permanent character, so far as we have been able to discover, after a most thorough investigation, extending through a long series of years, during which millions of strawberry blossoms have

been examined with the severest scrutiny. Other forms may exist, and it is not claimed to be impossible that we may yet find a seedling which shall have the general character of a pistillate, that may show an occasional perfect or hermaphrodite flower, as a peculiarity of that individual, but we have never yet observed such a variety; and, further, we believe that whatever impress, as to peculiarities of foliage, pubescence, habit, inflorescence, or fruit, each distinct seedling may receive with its origin, it will be retained in its increase by runners, so long as the variety remains extant. Seedlings may vary from the parent, but offshoots will not be materially different, except by accidental malformation or by development of unimportant organs.

JOHN A. WARDER, *Secretary.*

REPORT

Of the Committee of the Cincinnati Horticultural Society on the Statistics of the Strawberry, and the quantity sold in the Cincinnati market, for the year 1846:

May 19th	10 bushels.	June 1st	100 bushels.
20th	20 "	2d	300 "
21st	20 "	3d	300 "
22d	25 "	4th	300 "
23d	55 "	5th	300 "
25th	20 "	6th	350 "
26th	250 "	8th	100 "
27th	200 "	9th	350 "
28th	200 "	10th	300 "
29th	250 "	11th	250 "
30th	300 "	12th	150 "

Total, for 22 days, 4,150 bushels.

D. K. CADY, *Chairman.*

APPENDIX E.

From the "Horticulturist," August, 1854. By P. Barry, Editor.

THE CULTIVATION OF THE STRAWBERRY.

The discussion of the Strawberry question, which has occupied the pages of agricultural and horticultural journals so largely for a few years past, has been the means, directly and indirectly, of advancing materially the cultivation of that fruit. We find ample evidence of this in the more abundant supply of our markets, and in the production of a large number of seedling varieties. Recent letters from correspondents in all parts of the country, as well as the reports of late exhibitions, all testify to the very general interest which is felt on the subject, and the progress that has been made. But, after all, we are constrained to say that our cultivation is yet very indifferent. The size and appearance of the great bulk of fruit offered in market, convince us of this. Those who know how to cultivate, are in many cases slovenly, or act upon the principle that good culture will not pay; while there are many who fail for want of correct information. We have now before us a large number of inquiries on the subject. One wants to know how to prepare the soil; another, when to plant; and another, *how* to plant. Several correspondents who are well informed on the subject of cultivation, ask us to give them the names of the best perfect-flowering sorts, as they are tired of keeping separate the staminate and pistillate varieties. We have therefore thought it might be well to offer a few hints which will serve as a general answer.

We will state here, at the outset, that to cultivate the strawberry successfully, is but a simple matter. To grow large, handsome, fine-flavored fruit in abundance, it is not necessary to employ a chemist to furnish us with a long list of specifics, nor even to employ a gardener by profession who can boast of long years of experience. Any one who can manage a crop of corn or potatoes, can, if he will, grow strawberries. We say this much by way of encouragement, because so much has been said in regard to various methods of culture, and various applications and specifics, that some people have become persuaded that a vast deal of learning and experience is necessary to produce large crops of strawberries.

Judging from what we have seen, we believe that the great cause of failure is negligence. The strawberry plant—not like a tree, which, when once set in its place, remains there—is constantly sending out shoots (runners) in all directions, taking possession of the ground rapidly around the parent plant. In a short time, therefore, unless these runners are kept in check, the ground becomes entirely occupied with plants, the parent plants become exhausted, and the ground can no longer be stirred or kept in such a condition as is necessary to sustain their vigor. The result is, the ground is covered with a mass of starved and weakly plants, choking up each other in a hard, uncultivated soil, and producing a spare crop of small, insipid berries, that dry up on their stalks before they are ripe, unless rain happens to fall every day.

The constant stirring of the soil around the plants, is one thing which in our climate is absolutely neces-

sary; and any system of culture which precludes this, or throws any obstacle in its way, is defective. If any one will examine his strawberry beds, he will find the plants along the outer edges of the beds, where the soil has been kept clean and fresh by the frequent use of the hoe, vigorous and healthy, with luxuriant dark-green foliage, and large, fine fruit; while in the interior of the beds, where the plants have grown into masses, and covered all the ground, so as to prevent its cultivation, they are yellow and sickly-looking, and the fruit poor and worthless. This we see in our own grounds, and everywhere that we find plants growing under similar circumstances. Does this not show the necessity of cultivation close around the plants? No matter how deep we may trench the soil, or how unsparing we may be with manures, or how copiously we supply moisture, this cultivation cannot be dispensed with, if we aim at producing fine fruits and abundance of them. "But," says one cultivator, "by allowing the ground to be all occupied with plants, we save all the labor which would be consumed in removing the runners, and we avoid the necessity of applying a mulching to keep the fruit clean." Very true, you save some expense; but what do you get in return? A crop of fruit not fit for the table—small, insipid, and so dirty, if a heavy rain occurs about ripening-time, that it must be put through the wash-tub before it is placed on the table. It is possible that the market-grower may be able to produce berries of this kind at a less price per quart than he could by a careful, cleanly, and thorough system of culture; but then he can expect to sell such fruit only when no better can be had. We have some

doubts, however, as to the economy of bad culture in the long run. If a proper system were adopted at the outstart, and followed up with regularity, it would not be found so profitless or expensive. In this, as in every other kind of culture, a system is absolutely necessary. A certain routine of operations which are easily executed if taken at the right time, become burdensome when deferred; and being so, they are not unfrequently put off altogether. Precisely thus it is that strawberry beds are neglected, both in market gardens and private gardens, until they are grown wild beyond hope of recovery. Now, we say to every one who wishes to cultivate strawberries, resolve at once upon abandoning the "lazy-bed" system; and if you cultivate but a square rod, do it well.

We advise planting in rows not less than two feet apart, unless ground be very scarce, when eighteen inches might suffice, and the plants to be twelve to eighteen inches apart in the rows. In extensive field culture, the rows should be at least three feet apart, in order to admit the use of the plough and cultivator between them, or even the passage of a cart to deposit manures or mulching material. The spade and wheelbarrow are too costly implements for an extensive culture where labor is scarce and high, as with us. From the time the plants are set until the fruit is gathered, the runners should be cut away as fast as they appear, and the ground be kept clear of weeds, and well worked.

In the fall, or before the setting in of winter, a mulching of half-decayed leaves or manure should be placed between the rows, coming close around the plants, leaving the crown or heart uncovered. This mulching

prevents the plants from being drawn out and weakened, or destroyed by freezing and thawing in winter. We have sometimes covered the entire beds, plants and all, with newly-fallen leaves; and by raking them off early in spring, the plants came out in fine order. In the same way we have covered with clean wheat straw, and found it answer well. In all the Northern and Western States, some winter protection is of great service, although not indispensable. In field culture, the earth might be ploughed up to the plants, as is done with nursery trees, in such a manner as to afford considerable protection again the action of frost on the root.

As soon as the fruit begins to attain its full size, and approach maturity, the spaces between the rows, which up to this time have been under clean culture, should be covered with straw, litter, or moss. This will serve the double purpose of keeping the fruit clean and retaining the moisture in the soil. When copious supplies of water are to be applied, which should always be done when practicable, stable litter is a good mulching, as the water poured on it carries down with it to the roots of the plants the fertilizing materials which it contains.

The application of water in abundance we must again recommend to all who want the finest fruit. Rains are very good, but they cannot be relied upon, and they always deprive the fruit of its flavor, while artificial waterings do not. On this account the French gardeners say that the strawberry "prefers water from the well to water from the clouds." It is supposed that the electricity which pervades the atmosphere during our summer rains, affects the flavor of the fruit.

When the crop has been gathered, the mulching ma-

terial between the rows should be removed, and the ground be forked over, so that if plants are wanted to form a new plantation, their growth will be encouraged. The same plants should not be relied upon for more than *two* crops. The labor of making a new bed, save the trenching of the soil, is no more than that of planting a plot of cabbages.

As to the season for planting, we would recommend the spring for large plantations, because then there is comparatively no risk of failure. The amateur, however, who wishes only to plant a bed in his garden, may do it at any time that he can procure good plants. If the growth of runners is encouraged in July, after the fruit is gathered, good, well-rooted runners may be had about the first of September, or it may be sooner. The young plants nearest the parent plant should always be chosen, if possible. In planting during the month of August or September, rainy weather should be chosen, if possible, but it may be safely done, even in a *dry* time, by using water freely. Water the plants well before taking them up, as it injures the roots very much to draw them out of dry ground; then water the soil thoroughly where they are to be set, before planting. A sprinkling will be of no use: it must go down deep, as a heavy rain would. Set the plants in the evening, and shade them a few days with boards set on edge, forming a sort of roof over them. Mulch them, too, with short litter; and it will be well, if the plants be large, to remove some of the lower and larger leaves. Planting can be done safely in spring any time until the plants are in blossom—and all summer, for that matter, with proper care.

We have thus briefly sketched the principal operations in strawberry culture; not in regular order, it is true, but we hope so as to be understood. We are not writing a book, and cannot enter into all the details with minuteness. We have said nothing of the soil, and will only remark that any good garden soil fit to produce culinary vegetables, or any good farm land fit for grain or root crops, will produce good strawberries; but it must be deeply ploughed, or trenched, say twenty inches at least, and liberally manured with well-decomposed stable manure or a good compost. The quantity of manure must vary according to the degree of natural fertility of the soil. In one case, a quantity equal to six inches deep all over the surface would not be too much; while in other cases, half that would be enough.

We would prefer not to make a strawberry plantation twice on the same ground; but when circumstances render it inconvenient to change, rows of young plants might be set, or allowed to establish themselves from the runners, between the old rows, which can then be turned under with the spade, and will serve to enrich the ground.

Now as to varieties. On this point there is room for a great diversity of opinion, and we cannot hope to name a list that will be acceptable to a very large number of persons, at least in many parts of the country. Planters must have recourse to the best experience to be found in their respective localities; in the meantime we shall express our opinion of a few varieties, and let it go for what it is worth.

It happens that in this country the greater number of our most productive varieties have but one set of the

organs of fecundation. A fruitful flower must have both pistils and stamens perfectly developed. The stamens are regarded as the male organs, and the pistils the female. When a flower has well-developed pistils, but no stamens, or imperfect ones, it must be impregnated by pollen from other flowers. Where a flower has no pistils, or has imperfect ones, it is utterly *barren*. A large number of our best American varieties—such as *Hovey's Seedling*, *Burr's New Pine*, *McAvoy's Superior*, *Moyamensing*, &c.—are wanting in stamens, and therefore foreign impregnation is necessary. In Europe this distinction is not observed to any extent, and all the English and continental varieties, as far as we know, are hermaphrodite. In this country very many of them fail from an imperfect development of the pistils, and are consequently barren, owing doubtless to the effects of climate and culture. It is not necessary that the two should be in close proximity; they are sure to get impregnated, if in the same garden, as the pollen is carried about from one flower to another by insects. The beds of the different sorts may be kept entirely separate. Mixing them up is a bad way, as the one outgrows and overruns the other, and they become so confused that nothing can be done with them. On this account many have grown tired of keeping up the distinction, and have resolved to cultivate hermaphrodite sorts only.

The following varieties are the best on the long list of those we have tested on our own grounds:

PISTILLATE.—Burr's New Pine, Jenny's Seedling, McAvoy's Superior, Hovey's Seedling, Moyamensing, Monroe Scarlet, and Crimson Cone. The finest fla-

vored variety among these is Burr's New Pine; the largest, Hovey's Seedling; and the finest and best for market, Jenny's Seedling and Crimson Cone. Hovey's Seedling, in Western New York, and in many parts of the West, is a very moderate, and, in many cases, a poor bearer. We have had no crop so heavy the past season (when all bore well) as on the Monroe Scarlet.

STAMINATE, OR HERMAPHRODITE. — Large Early Scarlet, Walker's Seedling, Iowa, Boston Pine, and Genesee. All these may be grown successfully for market, and are good, without being first-rate in flavor. We think much more of Walker's Seedling now than we did last season. It is very hardy, and a great bearer. It appears to be a seedling from the Black Prince. The Boston Pine is the most uncertain on the whole list; without good soil and culture, it fails entirely.

Besides the above list, we would recommend to amateurs, who are willing to bestow thorough cultivation and care on their plants, the British Queen, which, when well grown, surpasses in size, beauty, and excellence, any we have named. The Bicton Pine, a large and beautiful white variety, which ripens late. We have had a fine crop of it this season, although our plants—being set last year—were seriously injured last winter. Like all the foreign sorts, it needs protection, and a deep, rich soil, with abundant moisture. The Wood Strawberries—red and white—bear most profusely in all places, and last a long time; besides, they part freely from the calyx, and are therefore easily and rapidly picked, and their flavor is rich and agreeable to most people. In addition to these, we must mention

the Bush Alpine, (having no runners,) perpetual bearers, if kept liberally supplied with moisture. They deserve much more extensive cultivation than they now receive. With their assistance, we may enjoy strawberries not one month only, but *four* months.

APPENDIX F.

LETTER FROM B. V. FRENCH.

BRAINTREE, Mass., August 26, 1853.

R. G. PARDEE, ESQ.:

DEAR SIR:—I regret to say that the culture of the strawberry, with its varieties, is not so well understood as I could desire.

The culture I would recommend would be, in a yellow sandy soil, trench to the depth of two feet at least; this should be made rich by high manuring, to which I would recommend a generous supply of muck (decomposed vegetable matter) and spent tanner's bark: the whole should be finely mixed in with the loam at the time the beds are made up. If the ground should be so situated as to admit an ample supply of water, it would be of great service, judiciously applied. The beds should be made, for convenience, about three feet wide, the paths one and a half foot. The plants should be grown from the runners of the previous year's growth, and the strong ones only made use of, taken up from the ground, just as the new leaves begin to grow, with as much of their roots on as possible,

your bed being quite mellow. They should, at this time, (in early new leaf in the spring,) be transplanted with the roots, to the depth of their greatest length. To procure the finest fruit, they should be planted in hills, nine inches from the paths, and eighteen inches' distance one from the other. As no fruit is expected the first season, they should be kept clean of weeds, the earth to be kept mellow, and no runners allowed to take root. The second year you may look for and find a sure reward. The third year, let the runners take root; the yield will be about one-third of the preceding year, when you will have a full supply of new plants for a new bed: the old one, should you, in August, find it clear of sorrel and white clover, you may be classed with the neat gardener. Should these infest the beds, they may as well remain till the spring following, or till you have taken what new plants you may want, when the whole may be dug in, leaving your ground in a fine condition for a vine or root crop. In some soils the plants may want a slight protection from the frost. This, on the sea-coast, may be with sea-weed; in the interior, with wheat or rye straw.

VARIETIES.—The kind a cultivator should never exclude from his garden is the Early Virginia. Let him always keep a full supply of these; they are reliable when others fail. Next to this, for large berries and a great yield, is Jenney's Seedling. Hovey's Seedling, and Boston Pine, in some seasons are very fine. They should be in hills, under high cultivation, and with me not always satisfactory. Longworth's

Prolific, Walker's Seedling, and Burr's New Pine, promise well. There are a great number of others which I have tried that are good; but if I was to have but two kinds, they should be the Early Virginia and Jenney's Seedling; but you are aware, Sir, that these small fruits, which are such great luxuries, are like the large ones: we must try them all, and we often have occasion to change our minds on the trial of new varieties.

Yours, with respect,

B. V. FRENCH.

P.S.—I have near forty varieties of the strawberry growing, but they are not sufficiently tested to give an opinion on.

APPENDIX G.

LETTER FROM PETER B. MEAD.

SEPTEMBER 1st, 1854.

R. G. PARDEE, Esq.: *Dear Sir*—Your request, that I would give you a few remarks on the culture of the strawberry, I will now comply with, but necessarily in a brief manner. First let me say, that I am glad to learn that you are about to publish a manual on strawberry culture. Your long experience and marked success will enable you to invest the subject with unusual interest.

We cannot always command just such a soil as we want; but we generally have the material at hand to

modify it so as to answer our purpose very well. For the strawberry I prefer a sandy loam, well drained, and a southern exposure. An eastern aspect is also good. Animal manures I do not use, except on a few of the hermaphrodites, and then very sparingly, and only that which is well decomposed. I much prefer prepared muck, leaf-mould, &c. When a stimulant is required, a solution of guano, the salts of ammonia, dilute tannic acid, or a top-dressing of guano, superphosphate of lime, potash, &c., answers the purpose well. I prefer the guano, ammonia, and tannic acid. In a garden, strawberries should be planted in beds, and each kind kept distinct. Make the beds three feet wide, put three plants in a row, the two outside ones being 6 inches from the edge of the bed; the plants will then be one foot apart. The rows should be 18 inches apart; but in a small garden they may be one foot apart. Select young plants in preference to old ones. Set the plant up to the crown, but do not cover it. Keep the ground open and porous, and free from weeds. A word as to the best *time* for planting. I prefer early spring; but where a supply of water is at hand, it may be done at any time; for only give the strawberry plenty of water, and it will defy any amount of heat. I would remark, *en passant*, that whoever attempts to water his strawberries must do it thoroughly, if he would have his plants derive any benefit from it. A thorough *soaking* once a week will do more good than fifty sprinklings a day. Where water is not at hand, the planting should be done during August and September, taking advantage of a heavy rain. I prefer the early part of September; in fact, I have planted

Hovey, Burr's New Pine, Walker's Seedling, and others, as late as the 21st of October, and every plant survived the winter without covering of any kind; but I would not recommend planting later than September.

Next a few words about *mulching* and after-treatment. Latterly I have seldom resorted to mulching. I have a rake 7 inches wide with prongs 8 inches long, made of highly tempered steel. This is my mulcher. With this instrument I work between the rows from spring till fall; and frequently when the plants are in fruit. I know I shall be told that this is a dangerous practice, and I admit that it is in inexperienced hands; indeed, I would not trust another to use it among my own plants, owing to the danger of injuring their fibres; and yet I use it myself within an inch of the crown. When, therefore, I cannot give the necessary personal attention to my plants, I resort to the next best mulcher, which is *tan*, either spent or fresh. I prefer the latter. The ground should first be well stirred, and the tan applied not more than one inch thick. If too much is applied, it is apt to ferment and kill the plants. Many fine beds have been destroyed in this way. Where tan cannot be had, leaves from the woods may be used. These make an admirable mulch, and promise, in my opinion, to take the *first* place among mulchers. Hay, straw, grass, sawdust, &c., are also good; but whatever is used for this purpose, the crown of the plants must in no case be covered.

The beds having been properly made, the after-treatment becomes a very simple matter; indeed, I know of no plant that gives such generous returns at so

small a cost of labor; but you must not infer from this that I justify any thing like neglect. The beds must be looked over occasionally, runners removed, weeds pulled up, and every thing kept neat and clean. In the spring, rake the mulching into the walks, stir up the soil, apply a top-dressing if needed, and then put back the mulching. The best mode, however, is to apply one of the solutions before mentioned, after the fruit has set. The bearing-season may be considerably prolonged by thorough watering, and will amply repay the trouble where the means are at hand. As soon as the plants have done bearing, they will throw out runners, which must be pinched off, unless plants are wanted for new beds. I have no time to add more here, except to say, that he who would have good strawberries must *cultivate* them; by which I mean the opposite of letting them take care of themselves.

You will doubtless expect me to add a few words in regard to some of the leading varieties; but it would be impolitic for me to say much on this point, since you know I am now testing all the new varieties, and conducting a series of experiments having reference to the natural history of this most interesting plant. Friends have furnished me with varieties entirely new, and not yet sent out; but these I have only had under trial since last May, and it would be quite premature to say much about them, though some of them are very promising. I am daily expecting more. At some future time I shall review them all. I do not hesitate to say, however, that the following are good, without, at present, designating them in any other way: McAvoy's Superior, Hovey's Seedling, Moyamensing,

Burr's New Pine, Black Prince, Pennsylvania, McAvoy's Extra Red, (rather acid,) Boston Pine, Alice Maude, Longworth's Prolific, Excellente, Walker's Seedling, Beach's Queen, Large Early Scarlet, Angelique. But I rather think I will stop, for I know not where this may lead me. Barr's New White and Bicton Pine are both large white varieties; the former is best.

You also tell me you mean to add some directions about the culture of currants, gooseberries, and other small fruits, as well as the grape. These things should be better grown than they generally are. Gooseberries and currants are usually seen as a mass of half-decayed branches, without form or sightliness. It is next to impossible to bring these into shape, or develop their maximum productiveness. It is better to begin anew. Procure plants struck from cuttings; grow them with a clean stalk not less than six inches in height; prune them every winter, keeping the heads well open, and shorten in last season's growth in the currant, but not in the gooseberry. These fruits are generally planted against the fence, or in some out-of-the-way corner, just where they should not be. Give them an open exposure, plenty of manure, and good culture, and you will be amply rewarded. The Red Dutch is best for general purposes; but Knight's Sweet Red, Cherry, Prince Albert, White Grape, and others, may be added where there is room.

The raspberry and blackberry are also desirable in a garden, furnishing a delicious fruit at an opportune season. They both require a deep, rich soil. The blackberry may be planted against an east fence, and the raspberry against a west fence—about the best

places in a garden. The old wood of the raspberry should be cut out after it has ceased bearing, and some four or five canes of the new growth retained for next season. The blackberry should be winter-pruned, and shortened in about the last of July. They should both be tied to stakes or to the fence, and the ground kept free from weeds. Of raspberries, the Fastolf, Red Antwerp, and White Antwerp are among the best. Dr. Brincklé, has raised several seedlings, one of which, Col. Wilder, I have grown, and found to be good. The above, in some localities, will need protection in winter, which is best done by bending down the canes and covering them with earth. Mr. Van Dewenter, of Astoria, has a new ever-bearing raspberry, which will prove to be an acquisition.

Of blackberries, the Improved High Bush (of Boston) and the New Rochelle are now pretty well known. The latter is certainly the best, and most productive: it is a most beautiful fruit, and worthy of general cultivation. I saw a basket of this fruit from Mr. Rosevelt, of Pelham, Westchester Co., the berries of which measured from three to three inches and a half in circumference. Mr. Lawton has also shown fine specimens. About a year since, while at Chester, Morris Co., N. J., I saw a blackberry growing wild, closely resembling the New Rochelle, and quite equal to it. I have a variety, however, which I consider superior to either of the above in point of flavor. It is very distinct in wood and foliage, and a strong grower. It is a hybrid variety, and may be had of Mr. Moré, of Yorkville.

To say any thing important of the grape in a few

lines, is no easy matter. The best soil, I apprehend, is a gravelly loam, *thoroughly underdrained*, and subsoiled or trenched. We expect the vine to yield its fruit for a lifetime at least, and should prepare the soil accordingly. The ground having been trenched, dig a hole not less than three feet square and two feet deep, and fill up nearly a foot with a compost of manure, bones, broken charcoal, lime rubbish, and vegetable mould, or as many of these materials as can be procured, but no dead dogs, cats, or horses. Over this compost put a layer of the best soil; then take your vine, spread the roots in their natural position, and fill up carefully. Vines three and four years old are the best, if they have been properly cared for; otherwise I would prefer those two years old. Pruning is a matter of the first importance. In gardens, vines are grown upon either arbors or trellises, and the same kind of pruning will not answer for both. The arbor is generally used for the purpose of shade as well as fruit, and here spur-pruning is generally practised, but carried to such an extreme, that in the course of years the vines become knotty, stunted, and unproductive. The first year, little or no pruning is necessary; if there is much top, however, it must be cut in to two or three good eyes. The vine is very tractable, and may be trained in the most symmetrical manner; this, however, is too often done at the expense of the best fruit-wood. In the case of the arbor, after the leaders have been trained to their places, and the vines have come into bearing, do not prune closer than three eyes. If the growth is likely to be too much, rub out the middle eye, leaving the third for fruit, and the first for bearing next year;

at which time cut away all the wood down to this first shoot, which latter must be cut to three eyes, rubbing out the second as before, and so on from year to year. The truth is, it would require several pages to explain this matter fully, but I have no time for it. In the case of the trellis, what gardeners call cane-pruning is the best. Select as many shoots as are wanted, and cut out all the rest; these shoots are then shortened in to the first good eye; but if this should leave them too long, they must be cut to the desired length. I regret that I have not time to explain this fully; but the principle is, to get rid of last year's bearing-wood, and keep the new wood as near to the body as possible. The grape border must be manured, spaded, and cultivated with as much care as you would bestow on a crop of corn. A summer pruning is also necessary, which consists in thinning out the superfluous growth, and pinching in the laterals. The leaves of the grape vine must in no case be removed. The best time to prune is the fall and early winter.

The best grapes for this latitude are the Isabella, Catawba, and Early Black, or Madeira; the latter only for the garden; the Charter Oak, Royal Muscadine, (a synonym,) and others of that class, are worthless humbugs. The Diana is a small, sweet, and rather pleasant grape, and desirable for localities where the Isabella will not ripen. The Clinton and some others, which are well spoken of, I have had no opportunity of testing; and I have seen the fruit of many seedlings, which deserve no further mention, with the exception of a white variety, with the Catawba flavor,

and ripening 1st of September. I think this last will prove to be a very good grape.

But this letter has reached a great length, and I must close it, with all its shortcomings. If it contains any thing of use to you for the purposes of your manual, you are at liberty to do what you please with it.

Sincerely yours, PETER B. MEAD.

APPENDIX H.

From the "American Agriculturist," Sept., 1854.

THE FRUIT AND VEGETABLE GARDEN.

BY AN AMATEUR.

THERE are few accessories of the homestead more important than a good fruit and vegetable garden; no home is perfect without them. If there is one thing more than another which adds to the comforts of a poor man's cottage, it is a well-kept garden, in its largest sense; nay, it is a luxury, even to the millionaire. A well-regulated house within, and a well-kept garden without, make up much of the sum of human happiness. How few such there are! The garden is too generally looked upon as something to minister to the mere appetite; but, when rightly regarded, it exercises a moral and intellectual influence which gives it a strong claim to the serious consideration of all who feel any concern in the ultimate destiny of the human race. Horticultural pursuits, above all others, bring into healthy play those powers of body and mind, the mutual exercise of which alone can keep up that just equilibrium of the physical, intellectual, and moral forces, which makes the true man.

I will now submit a few practical remarks on what may be called the Cottage Vegetable Garden, or rather, Fruit and Vegetable Garden; for, on a limited plot, they ought not to be separated. There is no good reason why a man with three or four city lots, each 25 by 100 feet, should not indulge the luxury of a few choice fruits, equally with him who owns his acres.

In what follows, it is supposed that the lots run north and south, the house being built on the north front, and the flower-garden separated from the vegetable by a rose-trellis the full width of the lots. The flower-garden and lawn will occupy another article.

Let us suppose a man has four lots of ground, two of which are taken up with a house, lawn, flower-garden, &c. He will then have a plot 50 by 100 for a fruit and vegetable garden. Now it will not do to use half of this up with walks—a thing quite too common.

Beginning at the rose-trellis, lay off a central walk four feet wide, through the *length* of the garden; then, immediately behind the rose-trellis, lay off a grape-border ten feet wide, and parallel with this a walk three feet wide, stopping three feet short of each side-fence; then borders three feet wide next the east and west fence; then, parallel with these, a walk three feet wide; then a central walk four feet wide, through the *width* of the garden, and a walk three feet wide close to the south fence. This arrangement will make four large central beds, each 40 by 17 feet, besides the borders. The beds and borders should be edged with box, kept closely cut. The whole garden should be trenched two or three feet deep. To make the walks, dig out the soil three feet deep; fill in with stones about

one foot, and cover them with stout brush; then put in the soil, and finish with about six inches of coarse sand or gravel, raising the walks a little in the middle. Roll them from time to time till they become settled; a good coating of salt will help to make them hard, and keep them free from weeds. Walks thus made will keep your feet dry, and your beds tolerably well drained—the latter an object which should never be lost sight of, especially where early fruit and vegetables are desired. There are some matters connected with grading and levelling, which must be determined by the circumstances of each particular case. Lastly, there should be some eighteen inches of good soil, of which sod mould is the very best. No amateur can hope to have a good garden, pleasantly worked, unless every thing is properly prepared from the beginning; hence these particulars.

Now let us see what permanent "fixtures" are wanted. Four feet from the rose-trellis, put in a row of posts, six or seven feet high and eight feet apart, upon which stretch four stout wires. Plant a grape vine between each post, and keep them well pruned, on the *cane* system. Eschew all charlatans and humbugs, whether in the shape of men or vines, and among the latter especially, the Charter Oak. The walk, if made as directed, will keep this border well drained—a matter of much moment where well-flavored grapes are desired. Two or three loads of gravel, incorporated with the soil, would make it still more congenial to the grape. Between each vine, and some three feet from the box edging, put in a rhubarb plant, and under it a good heap of manure. This is a good

arrangement, notwithstanding some may object to it. In the centre of this border, where the wide walk intersects it, a summer-house may be erected.

In the border along the east fence, plant the blackberry, some three or four feet apart. In the west border, plant the raspberry, at about the same distance. It would be well, however, to reserve a portion of the west border for a few plants of sage, parsley, thyme, &c.

There now remain the four large beds, the borders of which may be occupied with *dwarf* fruit trees; no others should ever be grown in a garden, and by no means plant them in an auger-hole. I would recommend chiefly pears; but, for the sake of variety, a couple of plums, apricots, cherries, quinces, &c., may be added. These should be planted in the border of the large beds, about three feet from the box edging, and some eight feet apart. Between each tree a currant or gooseberry bush may be planted; these should be raised from cuttings, grown to a single stalk, and regularly winter-pruned. This mode of planting is good in itself, and leaves all but the border of the large beds for vegetables, strawberries, &c. One bed may be occupied with strawberries and asparagus, but the latter must be kept three or four feet from the fruit trees.

Having disposed of the principal permanent arrangements, let us look for a moment at such vegetables as will have to be raised annually. For this purpose we have left three of the large beds. It is taken for granted that a good supply of well-prepared barn-yard manure has been procured, as well as a set of steel

garden implements, which latter should always be kept as bright as a new penny. First make up your mind what you will grow, and how much of it. Then spread on a good coating of manure, and spade twelve inches deep. It is surprising to a novice how much can be grown on a given surface. Beets, carrots, salsify, parsnips, lima beans, and some others, will occupy the ground the whole season. Beets should be sown thick, in drills six inches apart, each alternate row to be used for greens, as well as the thinnings of the others. Between the carrots, &c., radishes may be sown. Lettuce, radishes, &c., may be sown in the raspberry and blackberry borders. Peas should be sown in double drills six inches apart, at intervals of three feet. Between the peas may be planted beets for greens, radishes, spinach, lettuce, &c., making two drills of each. The peas will come off in time for turnips, late cabbage, broccoli or celery; the latter should be planted in beds, the earth thrown out one spade deep, the celery planted in rows one foot apart, and the plants from six to ten inches in the rows. Snap beans will be off in time for cabbage, turnips, fall spinach, &c. If beans are wanted in the fall, they may follow onions, where these have been grown from sets. A few cucumbers may be planted in the fruit border. Sugar-corn should be planted in drills three feet apart, the plants six inches in the drills for the small early varieties, and about a foot for others. For a succession, plant from early spring till the first week in July, two or more drills at a time, according to the wants of the family. Corn may be planted after some of the crops named above. If one piece of ground is used, a por-

tion of it will give you some early spinach and peas. Radishes may also be planted from time to time along the fruit border, but too much of this will injure the trees. A few egg-plants and peppers may also be planted in the fruit border, but not immediately under the trees. By the exercise of a little judgment, a variety of things may be made to follow each other in this way, so that no spot of ground need necessarily remain unoccupied for a single day during the whole season.

The ground must be kept free from weeds, and well worked at all times. When the weather is dry, use the hoe more frequently than usual, (a narrow, long-pronged rake is best,) which will enable the ground to absorb moisture from the atmosphere, of which it always contains some, even in the dryest weather. Frequent stiring of the soil is important in another respect, in keeping it open and porous, and enabling it to take up the gases of the atmosphere, which constitute no inconsiderable portion of the food of plants. It will also give an earlier and better crop. Discard the practice of earthing your plants, except for the purpose of blanching. Hilling should not be tolerated, except in soils naturally retentive of moisture; the true remedy for which consists in underdraining, and not in hilling.

The preceding remarks are mostly of a general nature, but a few words may be said here of the time and labor necessary to cultivate and keep in order a garden like that here described. A person familiar with the operations to be performed, and expert in the use of implements, can generally perform the necessary labor (unless he is dronish) without detriment to his

daily business; on the contrary, he will find himself invigorated for the discharge of its duties. At all events, he will need but a few days' assistance for the rough work. I know that very much more than this has been done for years, and will continue to be done. I speak this for the encouragement of those who desire to surround their homes with these luxuries, but whose means will not permit them to employ a permanent gardener. Much time is lost for want of proper knowledge. The best advice I can give the novice is, first to learn what is to be done, and then learn how to do it, and always do it well. May the day come when even the common laborer shall be blessed with the comforts of a good home, and rejoice "under his own vine and" fruit "tree!"

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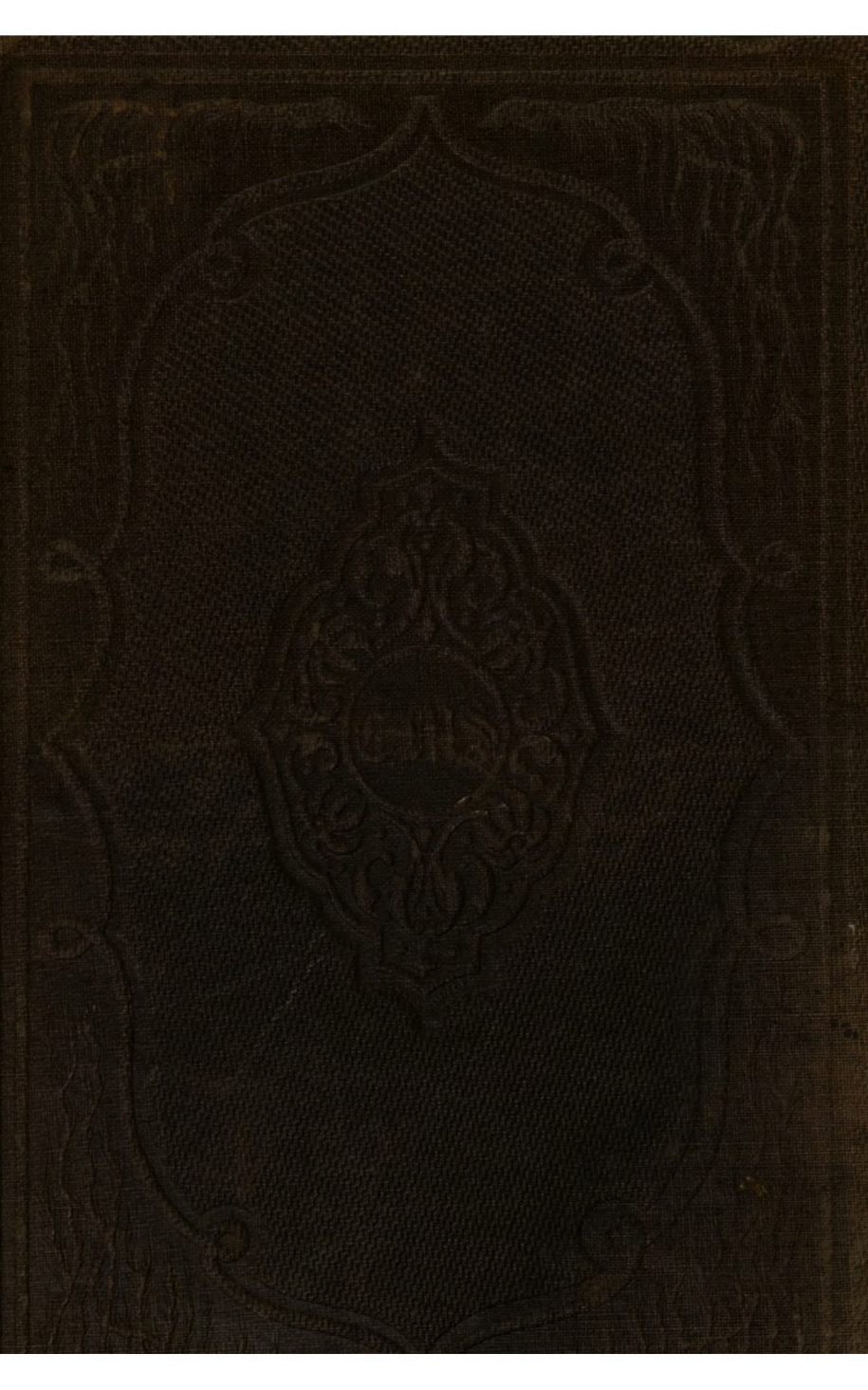
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